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PROCEEDINGS

OF THE

Teachers' Association,

OF

Northern California.

FIRST SESSION - - - YEAR 1897.

HELD AT

SHASTA RETREAT, CALIFORNIA,

August 23, 24, 25, 26, 27, 28, 1897.

YUBA CITY :

SUTTER PUBLISHING COMPANY POWER PRINT,
1898.

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OF THE

Teachers' Association,

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OF

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FIRST SESSION - - - YEAR 1897.

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SHASTA COUNTY, CALIFORNIA.

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ANNOUNCEMENTS.

1. The next meeting of the Teachers' Association of Northern California will be held at Shasta Retreat, beginning on the first Monday in August, 1898, and continue one week.
2. The Executive Committee will spare no efforts to provide the best instructors and lecturers that can be secured, and to arrange a program that will be of interest to all interested in education, whether teacher or patron.
3. This volume is mailed free to members of the Association, and if any additional copies are wanted they will be supplied upon receipt of one dollar.
4. Miss Kate Ames, Napa, California, is the Secretary to whom all communications, in general, should be addressed.
5. The managers of Shasta Retreat have promised to make the place much more inviting than ever and will spare no pains to make everyone comfortable during the meeting of the Association.

255586

OFFICERS FOR 1897.

~~~~~

|                         |                                                                         |
|-------------------------|-------------------------------------------------------------------------|
| President               | GEO. H. STOUT, Oroville                                                 |
| Vice-Presidents         | { MRS. M. E. DITTMAR . . . Redding<br>MRS. CLARA A. ARMSTRONG, Woodland |
| Corresponding Secretary | MRS. H. L. WILSON, Colusa                                               |
| Recording Secretary     | C. G. KLINE, Yuba City                                                  |
| Assistant Secretary     | C. S. SMITH, Yreka                                                      |
| Treasurer               | O. E. GRAVES, Red Bluff                                                 |

**OFFICERS FOR 1898.**

|                 |                                             |
|-----------------|---------------------------------------------|
| President       | GEO. H. STOUT, Oroville                     |
| Vice-Presidents | { C. S. SMITH . Yreka<br>MAY KIMBALL, Chico |
| Secretary       | KATE AMES, Napa                             |
| Treasurer       | MRS. M. E. DITTMAR, Redding                 |

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**CONSTITUTION**  
**OF THE**  
**TEACHERS' ASSOCIATION OF NORTHERN CALIFORNIA**

~~~~~  
PREAMBLE.

For the purpose of affording an opportunity for the interchange of opinions upon subjects of special interest to teachers and other friends of education, for continued mental development and physical recuperation during the school vacation, we, the members of this Association, do hereby adopt the following

CONSTITUTION.

NAME.

SECTION 1. This organization shall be known as the Teachers' Association of Northern California.

MEMBERSHIP.

SEC. 2. Any person interested in the cause of education may become a member of this Association by the payment of an annual fee of one dollar.

OFFICERS.

SEC. 3. The officers of this Association shall be a President, two Vice-Presidents, a Secretary, an Assistant Secretary, a Corresponding Secretary, a Treasurer, and an Executive Committee of seven members, each to be elected by ballot at each annual meeting.

DUTIES OF OFFICERS.

SEC. 4. The duties of the officers of this Association shall be such as usually pertain to such officers.

DUTIES OF THE EXECUTIVE COMMITTEE.

SEC. 5. The Executive Committee shall have charge of the preparation of program for each annual meeting, audit all bills, examine all vouchers, and render a report to this Association on the last day of its annual session.

TIME AND PLACE OF MEETING.

SEC. 6. At the close of each annual meeting the time and place for the next annual meeting shall be determined by the Association.

AMENDMENTS.

SEC. 7. This Constitution may be amended at any annual meeting by a majority of the members present; provided such amendment be submitted in writing and be read no later than the third day of the session, and acted upon by the Association during the last day of the meeting.

Teachers' Association of Northern California

OFFICERS FOR 1897.

President	GEO. H. STOUT, Oroville
Vice-Presidents	{ MRS. M. E. DITTMAR, Redding MRS. CLARA A. ARMSTRONG, Woodland
Corresponding Secretary	MRS. H. L. WILSON, Colusa
Recording Secretary	C. G. KLINE, Yuba City
Assistant Secretary	C. S. SMITH, Yreka
Treasurer	O. E. GRAVES, Red Bluff

EXECUTIVE COMMITTEE FOR 1897.

O. E. GRAVES, Red Bluff C. M. RITTER, Chico
W. M. FINCH, Willows J. E. HAYMAN, Colusa
G. K. BINGHAM, Red Bluff Prince L. Tople, Gridley
C. S. SMITH, Yreka

OFFICERS FOR 1898.

President	GEO. H. STOUT, Oroville
Vice-Presidents	{ C. S. SMITH, Yreka MAY KIMBALL, Chico
Secretary	KATE AMES, Napa
Treasurer	MRS. M. E. DITTMAR, Redding

EXECUTIVE COMMITTEE FOR 1898.

O. E. GRAVES, Red Bluff C. M. RITTER, Chico
C. G. KLINE, Yuba City J. D. SWEENEY, Tehama
PRINCE L. TOPLE, Gridley.

Treasurer's Report.

SHASTA RETREAT, Aug. 27, 1987.

To the officers and members of the Teachers' Association
of Northern California, I submit the following report:

RECEIPTS.

1897.

Mar. 9, C. G. Kline, membership fees...	\$ 15 00	
Mar. 9, Membership fees.....	13 00	
Apr. 23, C. G. Kline, membership fees..	30 00	
May 11, " " " " ..	100 00	
May 19, " " " " ..	40 00	
May 25, Membership fees.....	17 00	
July 25, " "	3 00	
July 31, " "	1 00	
Aug. 4, " "	2 00	
Aug. 16, " "	1 00	
Aug. 16, C. G. Kline, membership fees..	89 00	
Aug. 16, Supt. Anna L. Williams, mem- bership fees.....	8 00	
Aug. 21, Membership fees.....	1 00	
Aug. 25, C. G. Kline, membership fees..	110 00	
Aug. 25, Membership fees.....	1 00	
Aug. 27, C. G. Kline membership fees.	43 00	\$ 474

DISBURSEMENTS.

Mar. 9, Treasurer's book.....	\$ 50	
Aug. 25, Edward H. Griggs, services..	75 00	
" 25, C. G. Kline, cash advanced for printing, etc.....	28 45	
" 26, Thomas P. Bailey, services....	75 00	
" 26, E. N. Henderson, "	20 00	
" 27, George C. Edwards, "	25 00	
" 27, C. S. Smith, expenses.....	20 90	
" 27, O. E. Graves, cash advanced for printing	10 00	
" 27, O. E. Graves, cash advanced for badges	13 00	
" 27, C. S. Smith, sundries.....	11 75	
" 27, Geo. H. Stout, "	12 00	
" 27, O. E. Graves, "	6 00	
" 27, Traveling expenses.....	17 60	
" 27, C. G. Kline postage and expres'ge	6 00	
" 27, C. G. Kline, services.....	25 00	\$ 346

Balance.....\$ 128

Respectfully submitted,

O. E. GRAVES, Treasurer.

PROGRAM—As Prepared by Committee.

MONDAY.

- 1:30 P. M.—(a) Call to Order.
(b) Address of Welcome. . . . Hamilton Wallace,
Principal Yreka High School.
(c) Response. President G. H. Stout
(d) Appointment of Committees.
8:00 P. M.—Social Gathering.

TUESDAY.

- 10:00 A. M.—Science Work.
(a) Scope and Purpose.
(b) Time to be devoted.
(c) How to be taught.
Minor L. Seymour, Chico Normal
(d) General Discussion,
Leader, Dr. T. P. Bailey, Jr., U. C.
2:00 P. M.—History in Primary and Grammar Schools,
Charles H. Keyes, Berkeley
General Discussion.
8:30 P. M.—Lecture, Self Culture through the Vocation,
Edward Howard Griggs, Stanford

WEDNESDAY.

- 10:00 A. M.—(a) Mathematics in Primary and Grammar Grades
George C. Edwards, University of California
(b) General Discussion,
George Tebbe, Siskiyou County
2:00 P. M.—Geography, Primary and Grammar Grades,
Mrs. Purnell, Sacramento County
3:00 P. M.—History, Continued. Charles H. Keyes
8:30 P. M.—Lecture. Dr. T. P. Bailey, Jr.,

THURSDAY.

- 10:00 A. M.—English.
The Character of the Work in Primary and
Grammar Schools,
Edward Howard Griggs

(a) The Myth and the Novel,

Dr. T. P. Bailey, Jr.,

(b) General Discussion.

2:00 P. M.—The Course of Study.

(a) Shall there be Eight or Nine Years below the
High School?

Ernest N. Henderson, Chico Normal

(b) Should a Student who is either Immoral or
Unhealthy be Promoted?

Hamilton Wallace

(c) General Discussion.

8:30 P. M.—Lecture.....Charles H. Keyes

FRIDAY.

10:00 A. M.—Reading.

(a) The Improvements.

(b) How to be Taught,

Elizabeth Rogers, Chico Normal

(c) Silent Reading vs. Audible Reading,

Lena K. Nangle, Tehama County

(d) Sight Reading vs. Prepared Reading,

Margaret I. Poore, Shasta County

(e) General Discussion.

2:00 P. M.—Lecture, Refraction.....Dr. C. C. Gleaves

2:45 P. M.—Examinations.

(a) General Effects upon the Work of the School
Room.....George C. Edwards

(b) Their Effect upon the Morals of the School,
J. E. Hayman, Colusa High School

(c) Is their Scope now too Narrow? And should
Power Rather than Knowledge be Given
More Weight?

C. C. Swafford, Red Bluff High School

SATURDAY.

10:00 A. M.—Selection of Place of Meeting, Election of Offi-
cers, Reports of Officers and Committees,
Installation of Officers, Appointment of
Executive Committee.

(b) Adjournment.

JOURNAL OF PROCEEDINGS

OF THE

FIRST ANNUAL MEETING

OF THE

TEACHERS' ASSOCIATION

Of Northern California.

FIRST DAY'S PROCEEDINGS.

MONDAY AFTERNOON, AUGUST 23, 1897.

The first annual meeting of the Teachers' Association of Northern California commenced its session in the Auditorium, Shasta Retreat, August 23, 1897.

The Association was called to order at 1:45 P. M., by President George H. Stout, who made a few remarks as to the object of the gathering together of the Teachers' of Northern California.

After the song America was rendered by the assembly, Rev. Dr. Matthews of San Francisco pronounced the invocation.

The address of welcome was made by Prof. George B. Robertson, of Yreka, whose earnest words made all present feel that they were no longer strangers to Siskiyou county.

The response by President Stout left no doubt in the minds of the members present that this meeting would result in much good to the educational interests of Northern California.

At the close of President Stout's address the following committees were announced:

On Music: Misses Bessie Taylor, Isabel Ames, Mattie Elliot, May Kimball, and Messrs. Maxwell Adams and Charles Camper.

On Resolutions: Geo. B. Robertson, J. D. Sweeney, Prince L. Fogle, Miss Kate Ames, Miss Adella Gay, W. O. Budgett and F. S. Reager.

The minutes of the meeting held at Red Bluff on January 5, 1897, at which the Association was launched, and also the constitution formulated at that time were read.

MONDAY EVENING—ENTERTAINMENT.

In response to the announcement by President Stout that a social gathering would be held at the auditorium in the evening, a large and enthusiastic crowd assembled at the appointed time.

Familiar songs that all were able to join in were given at will. "Marching Through Georgia" was sung as the audience promenaded around the hall. Miss May Kimball recited "The Bobolink," and being heartily encored responded with one still more amusing entitled "The Naughty Little Girl." Miss Blanche Powell recited the child's piece "Sleepy," with much credit to herself, and Miss Oba Algeo entertained the audience for a time with her gramophone.

SECOND DAY'S PROCEEDINGS.

TUESDAY MORNING, AUGUST 24, 1897.

The Association was called to order at 10:15 A. M., by President Stout. Exercises opened by the audience singing "Columbia" and the song "Think of Me" by a quartette.

Dr. Thomas P. Bailey, Jr., of the University of California was introduced and spoke on "Science Work."

State Supt. Samuel T. Black spoke enthusiastically of the Association, saying that the purpose of these Associations is not a question of wages, but how to gain more strength, knowledge, and more information on educational lines that teachers may be able to do better work.

Prof. Edward H. Griggs of Stanford upon being introduced said that the gathering at Shasta reminded him of another that he attended in the Adirondacks, and that he felt that such meetings were a great aid to the teaching force and to the cause of education generally.

Prof. George C. Edwards of the State University and Prof Ernest N. Henderson of Chico Normal both spoke encouragingly on the subject of Associations of this kind especially when held at such an ideal place as Shasta Retreat.

TUESDAY AFTERNOON.

Exercises were opened with a solo by Miss May Kimball, after which Prof. Edward H. Griggs gave a talk on "History in Primary and Grammar schools."

A general discussion of this subject followed, participated in by Prof. Geo. B. Robertson, State Supt. Samuel T. Black, Prof. Wright, Prof. Tople, Supt. Kate Ames and others.

TUESDAY EVENING.

The evening of the second day was opened with the singing of America by the Association and a solo by Miss Lena K. Nangle which was well received.

The assembly hall was filled with an appreciative audience who listened attentively to Prof. Edward H. Griggs who lectured on "Self Culture Through the Vocation."

THIRD DAY'S PROCEEDINGS.

WEDNESDAY MORNING, AUGUST 25, 1897.

Association was called to order at 10 A. M., President Stout in the chair.

Miss Frances Simmons rendered an instrumental solo, and was roundly applauded.

Prof. Edwards of the State University, spoke upon "Mathematics in Primary and Grammar grades."

A general discussion of the subject followed, led by George Tebbe of Yreka.

WEDNESDAY AFTERNOON.

Association was called to order at 2 P. M., by President Stout.

An instrumental solo given by Miss Mattie Elliot of Butte was enthusiastically received.

Prof. Griggs then proceeded to finish his subject, "History in Primary and Grammar schools, after which State Supt.

Samuel T. Black was introduced and spoke on "Close Grading in City and Country Schools and the Overcrowding of the High School Curricula."

Prof. Griggs followed with "English" "The Character of the Work in Primary and Grammar Schools."

WEDNESDAY EVENING.

An instrumental solo at the opening of the evening session by Miss Minor of Dunsmuir was enthusiastically encored, and a vocal solo by Miss Elliot received the same warm response.

Dr. Thomas P. Bailey, Jr., was then introduced and gave his lecture on "What's the Use if You Don't Have To."

FOURTH DAY'S PROCEEDINGS.

THURSDAY MORNING, AUGUST 26, 1897.

Association called to order at 10 A. M., by President Stout.

After an instrumental solo by Miss Frances Simmons of Woodland and a vocal quartette by the choir, Dr. Bailey of the State University lectured on the subject of "The Myth and the Novel."

Dr. Bailey was followed by Prof. Ernest N. Henderson of Chico State Normal who read a paper on "Shall There be Eight or Nine Years Below the High School."

Before adjourning for dinner Dr Bailey spoke a short time on "The Course of Study "

THURSDAY AFTERNOON.

The Association was called to order by President Stout at 2 P. M.

After an instrumental solo by Mrs. Wallenberg of Roseburg, Oregon, Dr. C. C. Gleaves of Dunsmuir delivered a lecture on the subject "Refraction."

After a short recess the Association joined in singing the Star Spangled Banner, and this was followed by a paper on "Reading" under the headings of, (a) The improvements, and (b), How to be taught, by Miss May Kimball, of Chico State Normal.

Miss Lena K. Nangle then read a paper on "Silent Reading vs. Audible Reading."

The remainder of the session was occupied by Supt. Black and Dr. Bailey who both spoke on the subject of "Reading" and then made their farewell addresses.

THURSDAY EVENING.

At the opening of the evening session the musical portion of the program was supplied by Mr. Bingham and Miss Nellie Dodson of Red Bluff and Miss Minor of Dunsmuir. The selections were well received.

The subjects discussed during the evening were: "How to proceed with pupils of a higher grade who fail to get close to the Teacher," and "Reading in the Grammar Schools."

The discussion was entered into by Messrs. Bingham, Tople, Kline, Sweeney, Graves, Robertson, Stout, and Tebbe and Misses Ames, Nangle, Giles, and Taylor.

Supt. Graves took up the question "What to do with the boy during the transition period."

The session closed after a very profitable evening had been spent.

FIFTH DAY'S PROCEEDINGS.

FRIDAY MORNING, AUGUST 27, 1897.

The Association was called to order at 10 A. M., President Stout presiding.

The first on the program was a vocal duet by Miss Davis and Mr. Tebbe. They were warmly encored and responded with another fine selection.

Miss Elliot then followed with a vocal selection, and being encored she gracefully complied with another song which was equally good.

Prof. Edwards of the State University lectured on "The General Effects of Examinations."

FRIDAY AFTERNOON.

The Association was called to order at 2 P. M., by President Stout.

Miss Minor, of Yreka, favored the audience with an instrumental solo, entitled "The Carnival of Venice," which was followed by two choruses by the choir.

Reading of reports were now in order and the President called for the reading of the Treasurer's report, and the same was read and approved without discussion.

The following report of the Committee on Resolutions was received and adopted:

RESOLUTIONS.

Fellow teachers—Your committee organized by selecting J. D. Sweeney, Secretary, and have prepared the following report which we now present:

Resolved, That we, the teachers of Northern California in Association assembled, do hereby express our regret that in the ways of an All-wise Providence, we have been deprived of a sweet and cheerful companion; the teaching profession has lost a bright and shining light; and the body of Superintendents an earnest, efficient co-laborer, in the death of our dearly beloved and highly respected Mrs. Clara March Armstrong, that occurred in July of this year. She is not only missed in the home, in her county and in the State, but the loss of her services and encouragement in these gatherings of our profession can be but inadequately expressed.

Resolved, That a copy of these resolutions be transmitted to the family of the deceased.

Resolved, That we learn with deep regret and sorrow the severe illness of Prof. Hamilton Wallace, of Yreka, and express the earnest hope that he may soon be restored health and to his sphere of usefulness.

Resolved, That we appreciate the untiring efforts of Superintendent McKay, of Shasta Retreat, in striving to do all his power for our comfort and hereby extend to him a vote thanks.

Resolved, That we extend thanks to the officers of Association for their efficient management and to all who have in any way contributed to the well-being and success of the Association by lectures, addresses or otherwise.

Resolved, That we heartily return thanks to the S. T. Black, Superintendent of Public Instruction, for his presence, lectures and other valuable assistance at our meeting.

Resolved, That a vote of thanks be extended to Dr. C. H. Gleaves, of Dunsmuir, for his interesting and instructive lecture.

Resolved, That we regret that Prof. Chas. H. Keyes has been unable to be present and regret his removal from California, but we congratulate him upon his new work in Massachusetts.

Resolved, That we, the Teachers' Association of Northern California, extend the right hand of fellowship and co-operation to the San Joaquin Valley Teachers' Association and wish the members success at their coming meeting at Fresno in October next.

Resolved, That Secretary C. G. Kline be paid twenty-five dollars for his efficient services.

Resolved, That it is the sense of this Association that County Boards of Education have the power to revoke certificates of such teachers as can pay their honest debts and do not do so.

Resolved, That we appreciate the interest in our Association shown by the newspapers of this section of the State, and especially the presence of the editors of the Dunsmuir News, the Dunsmuir Herald, the Redding Free Press, and the Searchlight.

Resolved, That it is the sense of this Association that ALL counties north of San Francisco bay are included within its territory, and that all teachers of those counties be earnestly urged to join us in our next annual meeting, and that the southern ones of the group be requested to invite the Association to Lake Tahoe in 1899.

Respectfully submitted,

G. B. ROBERTSON, Yreka.
W. O. BLODGETT, Redding.
F. S. REAGER, Orland.
KATE AMES, Napa.
ADELA GAY, Colusa.
P. L. TOPLE, Gridley.
J. D. SWEENEY, Tehama.
Committee on Resolutions.

FRIDAY AFTERNOON.

The time of holding the next meeting was, after considerable discussion, set for the first Monday in August, 1898, and by a vote of the Association it was decided to meet at Shasta Retreat.

Election of officers for the ensuing year was now taken up with the following results:

President,

GEO. H. STOUT, Oroville.

Vice-Presidents,

C. S. SMITH, Yreka, MAY KIMBALL, Chico.

Secretary,

KATE AMES, Napa.

Treasurer,

MRS. M. E. DITTMAR, Redding.

After the election President Stout made a neat little address, thanking the Association for their confidence in him, in placing him at the head of the Association for another year, and pledged his best efforts to advance the cause of education and to make the "Northern Association" a power for good in educational circles. The President appointed the following members to act as Executive Committee for the ensuing year: Supt. O. E. Graves of Tehama county. Prof. J. D. Sweeney of Tehama, Prof. C. M. Ritter of Chico State Normal, Prof. Prince L. Tople of Gridley and Supt. C. G. Kline, of Sutter county.

The first session of the "Teachers' Association of Northern California," after five days work, adjourned after singing "Auld Lang Syne."

GENERAL SESSIONS OF THE ASSOCIATION.

ADDRESS OF WELCOME.

GEO. B. ROBERTSON, YREKA.

Mr. Chairman of the Northern California Teachers' Association, Fellow Members, Ladies and Gentlemen:

"The best laid plans o' mice and men aft gang agley."

Fifty miles to the north of us lies the little city of Yreka, in its green cup of hills. There, we have a nice town with a railroad and water works, and electric light and power works, and, better than all these, we have a public High School. Of course we feel proud of all these, the High School especially. But best of all, our jewel, is Prof. Hamilton Wallace, the Principal of our High School. He was to have delivered the address of welcome, today, but unfortunately he is too ill to attend, and therefore you will miss a rare treat, for he is both scholarly and eloquent and would have given us lots of good things in palatable shape.

At eleven o'clock this morning I was asked to speak in his stead, and extend a welcome to you which fact I offer rather as an explanation than an apology for not having prepared a formal address of welcome.

While to me the change of speakers seems to be a comically accurate illustration of "Descending From the Sublime to the Ridiculous," yet the occasion and our environments are an inspiration to me. I asked our County Superintendent what I should say to you, but he told me he didn't know. Then I asked several lady friends, but they assured me that ladies never talked much anyway, and of course could not be expected to know what to say. Finally I gave our worthy President here, brother Stout, two bits and so he went and sat down with me on the big fir stump by the corner of the restaurant and told me all the things I must say.

Now, I am strongly tempted to enter at once into a discussion of some of the educational topics that we will have before us this week, still I know that if I do, I will feel the chairman tugging at my coat-tails, so I reluctantly desist. However our beautiful environments here, of bold mountains, green trees, and bright, rushing streams as a background for our week's work, hint to us the importance of making our school-rooms bright and fresh and attractive. While these birch and dogwood switches which nod and sway so invitingly just outside the window there are touchingly sugges-

tive of ready means of discipline, yet we hope to hear and learn much here this week touching a higher and nobler discipline which is educational rather than corrective. Let us do good, honest work here, and when we go back to our school-rooms, we will be fitted to do honest work there, remembering that honest effort on the part of the teacher generally produces an honest effort on the part of the pupils.

To our friends from the South, we would say that the warm wave which we are experiencing this afternoon is not usual at Shasta Retreat, but is merely an excitation of temperature indicative of the warm welcome which Siskiyou is extending to our visitors from the South.

Apropos of this sultry afternoon, is a picture recalled to my mind, of my first trip by stage along the road across the river yonder to Yreka, some twelve years since. It was 2 o'clock one January morning and the snow was falling only as it can fall on the southern base of Mount Shasta. When I reached Yreka I found the County Superintendent teaching school, and I suppose he did his school visiting nights and Sundays.

Today, our Co. Supt. who, by the way, is a Siskiyou production, and who by his rare executive talent and indomitable energy has done a splendid work for our schools, is not permitted to teach, but must give his whole time to school supervision. As for our two High Schools, one at Yreka and one at Etna, and the rapid growth of our county schools in Siskiyou—well, I refer you to our Supt. who is here loaded with statistics.

On behalf of our schools, our teachers, and our people in Siskiyou, I earnestly extend to all of our visiting friends a hearty welcome. Metaphorically we open our arms and take you to our hearts, and if words fail me to fully express our welcome, please remember that there are some feelings that lie too deep for words.

On behalf of the good people here at "Shasta Retreat" I offer you further welcome, not only on behalf of the authties, but also on behalf of the villains who occupy all the cosy villas.

We hope you will forgive us for the crudeness noticed at "Shasta Retreat." Please remember this is a new camp and just "make believe" that you are camping out, and I am sure you will all enjoy yourselves. This is "a day of beginnings," both with our Association and with "Shasta Retreat," but I feel with a sense of certainty which seems most prophetic, that our Association will meet here year after year, ever growing and increasing in strength and usefulness even after you and I have "passed" to the Higher School. I am sure that I shall always cherish with pleasure the

lection that it was my privilege to offer the first formal words of welcome to our first Association in its new home.

PRESIDENT'S ADDRESS.

GEO. H. STOUT, OROVILLE.

Teachers of Northern California:

We have met here in this beautiful spot of nature's architecture for a noble and elevating purpose, and may it be hoped at the outset that each one present will feel that the success of this, our first meeting, depends on him individually. To meet at such a place, at this time, and for such a worthy purpose, will have a lasting influence for good upon the heart tablets of thousands of boys and girls. We have met to better pay a debt and duty to the rising generation.

Environment has much influence upon our lives and characters. The city teacher, who sees daily nothing but straight lines and angles in brick walls and paved streets, teaches perfect shapes, figures and set forms in her daily school work. But the teacher who walks through such scenes as are here painted, gathers up sunshine, flowers, song and laughter, and the schoolroom is filled with the reflex action of all these. The lines and figures will have more of nature's curves.

Teachers, the song of these whispering pines, that murmuring stream, yon lone white Shasta of the North, will go back with you into the schoolroom, and some day when you are tired and discouraged the memory of them will whisper new courage, patience and love, and life's burden will be taken up again, stronger, firmer and more enthusiastically; then your pupils will get the best that is in you.

There never has been a time in our educational history when so much is being done to discover the true depth and system of education. Psychology, pedagogy, child-study, correlation, apperception, are terms that continually meet the eyes of teachers. But let us see at this gathering if we, too, cannot add something to the little we already know, and let us make a strong effort to get upon a high, natural plane of work. Psychology or soul teaching, Socrates, Plato, and Aristotle solved that question by being the soul embodiment of what they taught—truth, virtue and honesty. Teachers, if you would be soul teachers, live it, act it, out of school and in school, and then your pupils will inhale it from the very atmosphere that surrounds them.

Pedagogy, child-study ! well, it is time to study the child. He has been studying the teacher for the last two thousand years and he will always know you better than you

know him. So my idea is to give the pupil a good subject to work upon; you cannot deceive him, and if you are true, loving, and patient, it will stamp its impress upon his plastic clay.

Teachers, you assume the position of parent while in the schoolroom. Did you ever stop to think of a mother's love? It penetrates the prison dungeon; it goes out to the world's end; it enters the dens of vice; it reaches beyond the grave. It is patient, firm, constant, and long suffering. Have you this love? Have you any part of it? To succeed, you must have it.

As the best home is where the best discipline is found, as the most respect is where the most order and obedience is required, so will you find the best school where the most love abounds and where the best order is required. When Christ taught, he did not stand far off or on some high pedestal, with his disciples far below him, but they were up close about him. Socrates gathered his boys around him. When I see a teacher upon some high rostrum with a book in his hand, from which he is asking questions, and his pupils are far down and away from him, I think that person is very far from the kingdom of Heaven. Get up close to your pupils, put the book away. Give them yourself and they will come up close to you in soul and body. When I see a minister far up Heavenward in some tall pulpit and his sleepy congregation ensconced in low, dingy pews, I think "preach on, you are aiming at the wall and will hit it." Then again, we teach too much book, let us get farther outside.

It is necessary to teach spelling, grammar, geography, arithmetic, history, etc., but let us teach more of those things that make men and women. Truth, honesty, industry, economy, obedience and patriotism. Without truth, no one is useful, and how better can we teach it than by being a living, moving example of it. So many parents and teachers hold out as an inducement to study, that the pupils can live without work if they get a good education. This is wrong, it is filling our land with educated loafers, who are too proud to work and not smart enough to live without it. So I won't teach industry; teach our boys and girls that the happiest and noblest men and women are those who toil. Teach that nobler incentive, "that they must educate to know best how to work."

Obedience, order or discipline must be taught in home and school. If the parents have taught it to their children, good. But you will have those whose education at that line has been sadly neglected. You must give it to them. Do you ask how? I cannot tell you. There are as many ways as there are pupils. I know how they did thirty

ago—muscle, birch, and hickory did it. We have swung back to the other extreme and have no birch at all. Doctors have many treatments; some times they give strong physics. I think, when nothing else will do, birch well used and judiciously applied, is good medicine, even in these enlightened times.

Yes, teachers, it is also necessary to teach economy and etiquette. The people of California have been learning the sad lesson of saving lately. But we must give our boys and girls lessons and examples in economics. Fifty years ago boys and girls were taught to be courteous; boys took off their hats to gentlemen and ladies; girls would courtesy when entering the schoolroom. I think in the mad rush of educational methods that some good things have been left behind. Let us revive them. Take an afternoon, once a month, turn the schoolroom into a social gathering; have them receive and entertain company. Give lessons in table etiquette; boys like to be considered as little gentlemen and girls as miniature ladies. Treat them as such and they will respect you for it.

Patriotism! Must we teach that too, you ask? Most certainly. Germany's "man of iron" said after the Franco-Prussian war was over, "It was not the German soldier who won, but the German school teacher." There was "the power behind the throne." The love of country had been taught in the schoolroom. Why do the stars and stripes wave over every school in this fair land? Does it represent nothing to the boy? Make it mean something! Home, liberty, justice, right—all these, you can make the boy understand, lie enfolded in that banner. Teach him that love of country is stronger than love of money, or should be, and then when those boys grow up into manhood, it will not require a golden lever to pry up a just law.

A few generations ago, pupils were taught to think; now they are inventing apparatus to do the thinking for them. Teach our boys and girls to be independent, self-reliant thinkers.

Yes, we should teach honesty in the schools, I think we should here indorse the action of the Alameda Board of Education in the action they have taken to revoke any teacher's certificate who could pay his debts and would not do so. Let teachers know that they must be all round gentlemen and ladies, or not enter the schoolroom. I care not if the teacher be Protestant, Jew or Catholic, married or single, young or old, but let him be a perfect type of manhood in its broadest and widest sense, and keep religion and politics out of the schoolroom.

Some teacher's complain that it takes a "pull" to secure a school. I will admit that to get a poor teacher into a school takes a "pull" and a hard one. And sometimes, I am sorry to say, the questions of "where the teacher will board, and how much she will pay for poor accommodations" are more important than the teacher's qualifications. I hope to see the time when such will not be the case. I hope in near future that all teachers will be employed solely for their true worth and sterling qualities.

I hope we can talk some on school legislation before we adjourn. We must have a stronger compulsory law. Hundreds, yes, thousands of our bright boys are not attending any school. From this class is the army of criminals reinforced. It is by the actions of this class that our school system is condemned. When citizens see the evil tendencies of this unemployed class, our public schools are a failure. They forget that the law can not reach them and that a teacher is not responsible for a state of things over which he has no control. Let the law put them in the schools and keep them there and we will show you different results. These children are too precious to lose. Our Legislature should enact a law that would compel those between the ages of 7 and 14 to attend some school at least six months in the year.

Teachers, let each one of us, for the next year, study carefully each child under our instruction. Note closely the disposition, character, home, surroundings, tastes and adaptations of each pupil.

Study carefully your own work, see in what directions you can improve; the true teacher never ceases to study. Lastly, let each one present do nobly the duty that lies closest, and thus be more fully prepared for the next great act in life's drama.

SYNOPSIS OF LECTURES AT N. C. T. A., SHASTA RETREAT, AUGUST, 1897.

SCIENCE WORK.

[SYNOPSIS.]

THOMAS P. BAILLY, JR., UNIVERSITY OF CALIFORNIA.

Nature-study does not consist in so-called object-lessons. Form, color, shape, etc., are neither interesting in themselves nor productive of any significant good and character. The child's world is chaotic enough without the intrusion of isolated, meaningless, chaffy, and splotchy sensations. Nature is rational; the child's nature is rational. We have no right to treat his mind as a receptacle for a "job lot" of sensations. The only educative objects are those that mean something, that are significant, that make things more cosmical and less chaotic.

On the other hand there is no place for science in the lower schools. Object-lessons without rationality are bad, abstract principles without concrete experience are worse. The child's own nature experience ought to be generic and significant from the start, but the generic must be presented in concrete form. There we teach the child the generic principles of obedience to truth, persons and institutions, but we do it through his concrete experiences, his acts of obedience, the value he sets on conforming himself to law, etc. So we teach him the principle of division of labor, but in a concrete way, through his instinct for co-operation, through his experience in the interchange of products, in the specialism of talent that he sees in trades and professions, in homes and schools.

In other words, our material ought to be generic and concrete, and our method from this generic and concrete to the specific and abstract. Use the child's experience and environment in his nature-study and select from them the typical and significant examples—the meaty ones. Choose the plant rather than the leaf; the ground plant rather than the pot plant; the wild plant rather than the tame plant. Get material that is most concrete and most full of relations, and find out from the child how to add to concreteness; how to increase typical significance. To do this, love nature yourself; study the children; rationalize the child's environments; let play have its share in making nature's sun friendly; be a deep-minded and deep-hearted soul yourself; teach the children with your own enthusiasm for natural loveliness and order.

"HISTORY IN PRIMARY AND GRAMMAR SCHOOLS."

[FROM THE SECRETARY'S NOTES.]

PROF. EDWARD HOWARD GRIGGS, STANFORD UNIVERSITY.

Our age may be rightly called an epoch of science, and science is the whole body of reasonably exact and organized knowledge. What our age desires to know is the Truth, not what we wish to believe true, not what our prejudices or interests wish to be true, but what is true.

There has grown up lately a great reverence for truth for its own sake, and to science has fallen the task of taking up and getting out the material and then organizing it.

In connection with this we have grown to have almost a superstitious reverence for inductive reasoning. It goes back to the period of the renaissance, the rebirth or re-discovery of man and nature. The dominant conception of the Mediaeval was to give up life here that we might have life hereafter. So people neglected their physical wellbeing, they went dirty and ragged. The renaissance changed all this, and our civilization is the last wave of the mighty tide which swept away the old beliefs and pagan practices. It has inspired a new interest in everything. Today we cultivate science that we may know the truth in some particular line. Astronomy is of no practical value, but yet no one questions astronomy, and so with many other sciences, geology, biology, etc. This gives us a right to call our epoch a science epoch and, as in our time the greatest interest has been along the lines of biology in the last fifty years, there has been an effort to put these methods into the study of the humanistic sciences, which, dealing with human experience and its results, are the direct means of relating the individual to the race, of bringing the man into contact with humanity. This has been of great help to us, and history has been found to be no longer some man's philosophizing about men and things, but an earnest organized attempt to find out the Truth about countries and peoples. We have made one mistake though of reducing the study to a too narrow basis. We must take notice of individual tendencies among people. It is first one man's idea and must then spread to others. Instead of being simple it is very complex, and the more we have to learn.

The fact that all great passions can be traced from a low origin, as human love and the idea of marriage have their birth in physiological tendencies of a low degree, does not do away with the idea of a higher origin likewise, any more than the physiological idea of love does away with the spiritual idea of love.

The effort of certain men to reduce literature to an exact science has degenerated into mere philology. The same

mistake is being made in history. Instead of taking the whole broad science of history, we have a tendency to take a narrow fragment here and there, which gives pupils at the best but a narrow view. We should take up special work in the historical sciences and work upon a broader plane than those who take the fragmentary line of work.

History never repeats itself. The same conditions never come again exactly. The renaissance produced the best of all that was at that time in man and woman, manners, morals, education, etc.

The historical sciences, history and literature, are not so much the life of the individual as his life in his relation to his fellow men. It shows not only the belief of the past, but the hope of the future.

History in the true sense is the history of civilization, not detached fragments of history, but the history of human development, the growth of humanity and of human life; and it is only when we organize these parts that we get the meaning of the whole. No one can understand American history who does not understand English history, and no one can understand English history who does not understand the history of the Teutonic races. The whole explains the part, but the part does not explain the whole.

General history is the first history to teach. Mankind is interesting to children before any particular man can be.

One great difficulty in teaching history is to keep the untrained mind of the child from desultory study. Care must be taken in teaching dates and names with nothing relating to them. Dates and names are indispensable with correct teaching, but are never an end in themselves; and as exact and accurate knowledge of historical facts is very necessary, all slovenly habits of thinking or teaching should be avoided.

The tendency of the age has been to make things too easy. That being the case we are in danger of developing a race of people who will not do anything they do not like.

The teacher especially should know the facts, and know them thoroughly, before he attempts to teach; but the chief difficulty after all is to give pupils a realizing sense of organized history. The difficulty is in making them realize that the puppets of the text-books were real men and women, like those with whom he comes in contact every day; and unless we get him to understand this, we get him to understand nothing. This, then, is what we must work for—to get children to have a realizing conception of the fact that the men and women of the past were more like us than different from us. This is the problem and teachers must solve it.

I have said that history in its broadest sense is the history of civilization, and the object in teaching it is to give to

children a realizing sense of the life of history. This is one reason why hero myths are so useful in teaching history on account of their personal character. When he comes to think of history people as alive he has the spirit of history. Work with the original material we have from the past, and bring out the actual facts and actual results of past life. In this way many a poet or novelist meditates between the student and some phase of human history, and so gives new vitality and significance to the epoch studied.

Again there are two kinds of incident. Incident true in fact, and incident true in spirit. With these we must cultivate a spirit of historical criticism. For instance, there are true fairy tales and also false fairy tales. A true fairy is one where, given an impossible set of characters, the natural result of these conditions, supposing such things possible, may be worked out; as, suppose one had a pair of seven leagued boots, how much would he accomplish? A false fairy tale is one written merely to sell a book. Human life is expressional in action, in institutional forms, in the range of morals.

All human actions are from mingled motives. We rarely do good without some selfish motive, and rarely do bad without some mixture of good. With all this we have a duty to doubt but we should not begin to doubt too early—children ought to begin by believing that everything their parents say is right. They should get out of this gradually and not with a shock. It is dangerous to put adult doubts in the mind of a child, but gradually he must learn to think for himself.

Take the myth of Andromeda and Perseus. Andromeda stands for all that is lovely in distress, the dragon, or monster, for all that is terrible in imagination, Perseus for strength, shielding and rescuing weakness and virtue in distress, as it should be—the ideal condition, but it too seldom happens. Yet we should not get to that too soon.

In the simple study of history we have the data of facts, true in spirit and true in fact. The child can easily distinguish between what is actually true and what people believe to be true. There is one kind of story that children do not like, that is the moralizing one, but they do like stories that present interesting types. If you keep the distinction between what is really true, and that which is true in spirit, there is no harm in teaching legends.

History—modern history, will have to be re-written according to the position of woman today. Women have always made some history, but men have written it so we have heard but little of them. We ought to teach the great women as well as the great men of history.

We must not only proceed from the concrete to the abstract, but take actual types and study them rather than

that which has been written about them. Not that we should not study the book, but we should give the preference to the types.

We can not begin too early to find out what actually happened and not what some author thought happened. We have the action of the Past, we have the great lives in their constitutional form. We can take these. Then we can take the great works of art. Each one bears the impress of the age in which it was made. It gives a realizing sense of that age whether the author intended it or not. He could not help it. If the boy who is reading about George Washington could read an actual letter of his or a speech which he actually delivered, it would make him feel that George Washington was alive. A relic of any kind has the same value. A battle flag, the sword of a successful general, and even pictures help. A great deal of this expression comes through literature. If one would have a realizing sense of the Revolutionary Period, read the songs of the poets of that period, the books and papers published then. From the study of history we learn to appreciate human life, to enter into other lives, to see the world through their eyes.

To bring our students to such a recognition, we as teachers must attain it for ourselves first. It is indispensable that we should saturate ourselves with the immediate expressions of life in an epoch we are attempting to teach. If we ourselves can attain the vital sense of the past, we shall be able to awaken it in others.

SELF-CULTURE THROUGH THE VOCATION.

[SYNOPSIS.]

EDWARD HOWARD GRIGGS, PROFESSOR OF ETHICS STANFORD UNIVERSITY.

Education in the ordinary sense is only of value in human life when there is some realization of life through action and through personal relations, or at least through one of these two channels. We can understand action only as we express ourselves, and we can appreciate the expressions of life that come from personal relations only as we have some experience in this sphere. As nine-tenths of our activity must be in the sphere of the vocation, it is surprising that we do not find the problem discussed in ethical treatises; but this neglect is true of all practical problems which are difficult in concrete life. And again, the vocation is peculiarly our own problem. One of the great forces of the present century is the growth and

increase in respect for work. In ancient times only the statesmen and the warriors were respected for their vocation, but in our times all forms of helpful and honest work are gaining respect. The resulting increase in the struggle of life has given new importance to the problem of the vocation.

The vocation is first of all the problem of gaining a livelihood; that is, of paying the running expenses in the business of life. But the true vocation of man is living, and not merely making a living; and the particular business of a human being gets its greatest significance as a means to the realization of life and of human helpfulness. All action is limitation as compared with the ideal. At the same time, it is the only channel through which the ideal can be made real, by struggling to make it a part of the actual world. We grow through efforts, even when these are partially unsuccessful, every achievement in the vocation being the means to a larger activity and greater appreciation. This is seen particularly in the fine arts. The value of any particular work of art is not simply the creation of one more object of beauty, but is as a means through which the human spirit grows in the ability to see and to create. This is true of the artist, of his world, and of the after world. The Sistine Madonna, of Raphael, the Hamlet of Shakespeare, the Divine Comedy of Dante, are achievements of the human spirit, the ideals in each case becoming real through the creative expression of them.

Every vocation can be made to some extent a fine art; that is, it can be so carried out that constant growth is possible through earnest activity.

Dead work is essential in any vocation. Great things which seem to be done with perfect ease cost most in the doing. As Spinoza expresses it, "all noble things are as difficult as they are rare."

Yet it is a mistake if life is all dead work, and where the vocation is not adequate as an expression of human nature, some side vocation is essential to the whole realization of life. In men like Bryant, and Mill, and Goethe, we have excellent illustrations of the value of a side vocation in rounding out the whole of human life. And again, there are times when the call is from one vocation to another, and when a certain amount of courage is necessary if a man is to go on to the larger work to which he may be called.

Unless we regard the vocation as a means of self realization, we cannot fulfill it well. Good work is done for money and good work is done from professional spirit, but the best work comes only when, as Epictetus expresses it, we are "willing to do all things to Zeus," when that is, our vocational activity is an expression of our own ideal is an effort

to gain more abundant life, and to serve the world. Any work which we do not reverence cannot be well done, and each man must feel that the particular work which he is doing to-day is as significant for him while he is doing it as any other man's work can possibly be to that other.

Not only growth, but sanity, comes from the earnest expression of life in activity. Pessimism is a disease which spreads by infection, but its originating causes are idleness and dissipation. We can never believe in an ideal long unless we attempt to put it into action, and any ideal which we do attempt to realize is permanently ours, however much its form man changes. Life is an opportunity to make the nobler ideals real through the struggle to express them in action, and so the vocation is an opportunity in which we can gain such a real expression of life as keeps us sane and sound at heart, as well as builds out our whole realization. Thus the spirit of reverence for the vocation, regarding it as a means of life and not merely of making a living, of larger service of the world, is the attitude essential to the best attainment of life.

TEACHING OF MATHEMATICS IN PRIMARY AND GRAMMAR GRADES.

[SYNOPSIS.]

PROF. GEO. C. EDWARDS, UNIVERSITY OF CALIFORNIA.

The objects aimed at in the study of mathematics are two: First, the power to apply to the various avocations of life acquired facts relating to number. Second, the disciplining of the powers of abstraction, generalization and reason.

In order to see clearly what should be taught and how it should be taught, one must have in mind the manner of the development of the intellectual powers. These are quite distinctly separable into two classes. First, those that are almost instructive. They grow with tremendous rapidity during the first six or eight years of the life of the child, and while they continue to grow after that, the growth is less rapid. These powers are: Perception, memory, imagination and language. Second, those powers which unfold very slowly, in fact so slowly that for the first six or eight years they seem scarcely to exist, but as they do develop, the growth is one of increasing rapidity. These powers are: Reason, discrimination and will.

As the eye carries impressions more reliably and more permanently than the ear, let us represent these great facts of mental growth by two curves drawn by a system of rectangu-

lar co-ordinates. If these curves represent the manner of development of the powers of the mind, (and I believe they do), we see instantly that during the primary period the entire work should be devoted to the development of the first set of mental powers.

In the latter part of the Grammar period the second set of powers are beginning their real growth. Like a young tree three feet high they need right there and then to be tied up to a stake in order that they shall develop into upright, systematical, fruit bearing trees. Right here is the nearest approach to failure in our school system. Our primary work is beautifully done. Partly because of its success in its proper place, it is carried right along and applied where something else belongs. It is time that the greater part of the work of the Grammar period must rest on the earlier powers of the mind. But it is also true that the neglect of the later powers is largely responsible for the non-effectiveness of the work of the seventh, eighth and ninth grades.

During the High school period the curves cross each other, and the work should rest upon the two sets of powers with about equal weight; the particular attention however of the instructor being devoted to the proper development of the later powers.

In the college period there is no question as to how the instruction should be carried on: It should depend upon the latter powers.

In view of those facts it is certain that the part of the arithmetic which requires the exercise of the reasoning faculties should not be undertaken in the primary school. In the seventh grade Literal Arithmetic (as a matter of expediency do not call it Algebra) should be introduced as a help to the arithmetic and for the purpose of teaching generalization. In the eighth grade Elementary Geometry should be introduced, partly because of the valuable facts encountered, and especially because of the training it gives to the reason. It should be geometry pure and simple; none of this thing called Concrete Geometry. "That is a deception and a fraud, a hollow mockery, a delusion and a snare." It is absolutely vicious in every tendency. It is simply drawing put under the title of geometry, for the purpose of flattering the vanity of people in that the pupil thinks he is studying geometry and some teachers actually think they are teaching geometry. Fakes in education are worse than fakes any where else.

The talk closed with some practical illustrations of the proper methods to be employed in the presenting of certain topics in the elementary arithmetic, and in the method of applying the early algebra to problems encountered in the latter

part of the work in arithmetic, particularly to problems in percentage.

The Closely Graded System and the Overcrowding of Our High School Curricula.

HON. SAMUEL T. BLACK, SUPT. OF PUBLIC INSTRUCTION.

I ask your attention for a short time to a few remarks more or less dogmatic [owing to lack of time], concerning the schools of our own cities and larger towns, wherein I shall endeavor to point out for your consideration two disadvantages, not to say evils, more or less common.

First—The closely graded system, and

Second—The overcrowding of our high school curricula.

I am aware that the importance of these subjects demands that each should be treated in a separate paper, and recognizing their importance I determined to speak briefly of both—making as I said before, dogmatic statements—suggesting, rather than offering, argument, in the hope that the teachers will take up and investigate more fully the statements and suggestions offered. I know that you will do this, if you do it at all, in the spirit that has prompted me to call your attention to what I consider defects. At the outset I wish to state my position very clearly on the grading of schools. I believe very firmly in the grouping, gradation and classification of pupils. I do this for educational as well as economic reasons. Within certain limits, groups of students working together on a particular line of study and guided by the skillful teacher, will accomplish more, and reach better and more satisfactory results than the same number of students working as individuals. The practical question is: How shall this grouping be done so as to obtain the best results for the individuals, as well as for the group as a whole? Does the closely graded system so much in vogue in our cities and towns solve this important problem? I think not. The prevailing method of grading the schools in a city, is to assign to each teacher a grade or half grade of forty-five to fifty pupils; these pupils remain with the same teacher a year or half year, according as the promotions are made annually or semi-annually, and are then passed on to the next grade teacher, and so on for eight or nine years. Now while this system of gradation and promotion may work very little harm for the average pupil—if there be such a thing as an average pupil in all branches, which I doubt. Pupils may average fairly well in one branch and be widely apart in other branches. Still the so-called average pupil does not suffer much from this grade method, as he is usually the only one taken into account in arranging

the course of study. But what is to become of the brighter boys—those mentally and physically the superior of the body of the class? Must they be retarded—their natural rate of progress sacrificed—that the system may be maintained? Keep marking time as it were? Such a condition is the logical result of a slavish obedience to the average city grade system; and were it not for the thoughtful care and intelligent eye of the skillful teacher and principal, such a condition would not only be the logical, but the actual result of the system.

And then there is the slow boy, whose very slowness appeals to the sympathetic teacher. But what can she do? Her hands are full with the work of the large grade—the great majority of whom must be carried, coddled, or crammed through, and passed along to the teacher in the next room, who will take up the work and do likewise, as very often the teacher's position depends upon the percentage of pupils promoted. And thus it comes that the slow boy, whose brain requires a longer exposure to the X ray of intellectual light, than does that of either of the other two classes mentioned, is either left behind for another term or year as the case may be, or is crowded on unprepared for the higher work that awaits him, doubly unfitted to take it up. Herein lies the great evil of a system whose tendency is to retard the natural progress of the bright boy, and discourage the dull boy, and tempt even the most conscientious teacher to become a salaried coach. The system, too, tends to make the teacher narrow, by circumscribing her educational horizon. If she looks out and beyond her year or half year's work, she does so of her own volition—there being nothing in the system to encourage her so to do.

Now, is there not some way whereby we may retain all that is good of the graded system without doing too much injustice to the individual? I believe there is a way—perhaps there are more ways than one. I venture to suggest a plan for your consideration—which I know is not entirely new to any of you. It is a fact that we learn by associating with those who are better (or even differently) educated than ourselves. We learn too from these associates in an unconscious kind of way, and with little apparent effort on our part. It is this principle that comes to the aid of the rural school teacher with her eight grades, and enables her to send her graduates to our high and normal schools, fully as strong as those who come from the graded schools of the cities and towns. Now why not apply this principle to our city schools, especially as we can do so with profit, and without imposing an additional burden on our teachers? I would not advocate giving each teacher all the grades, but I do advocate giving her two grades, a year apart in their studies, or two

half grades, a half year apart, instead of one. By such an arrangement, the disadvantages mentioned would be materially modified—if not avoided—without in any way interfering with the advantages of the graded system. As a matter of fact, the system itself, as such, would be improved, as the groups of pupils would be reduced from forty or fifty to twenty or twenty-five to say nothing of the increased opportunities of avoiding friction between certain teachers and pupils whose relations are inclined to be inharmonious. The principal of a large school would have the choice of at least two assignments for each pupil, without any increase in the number of teachers—quite an important consideration at times. The average boy would not suffer by such an arrangement. He would even be benefited in a general way, and would have the opportunity of making up something lost during the preceeding term either by inattention or unavoidable absence. The bright boy, if old enough, and strong enough, might do some work in both classes at different periods, and thus save one to three years in his school life—this too without any extra effort on the part of the teacher, as all this extra work on the pupil's part would be simply a portion of her regular classroom work. As to the slow, plodding boy, he would be unconsciously either reviewing or getting hold of some work ahead of him according as he was in the upper or lower class. The observing teacher would be quick to take advantage of such an arrangement to strengthen her slow boy. Under this plan, there would be no reason for a boy of considerably less than ordinary ability to pass along creditably, with his class, provided his health be good, and his attendance regular.

The teacher's duties would be no more onerous, as the drain on the nervous forces is commensurate with the number of pupils rather than with the number of classes. While the amount of written work for the blackboards would be increased (she can always find pupils ready and anxious to help in this), the amount of written exercises to be examined would be no greater with fifty pupils in two classes than in one. The variety of changing from one class to another would break the monotony of her work and thus bring relief and even rest. Her time, after three o'clock, would be more largely her own, as there would be fewer dull boys to help, as well as fewer ambitious, bright boys anxious to "skip a grade."

I now pass to a brief consideration of the high school question. We are constantly hearing complaints about the overworked pupils in our high schools, and I am inclined to believe that these complaints are not wholly groundless. The amount of study now required at the hands of high school

students, even if they knew how to study, is quite enough work—perhaps not too much—but when we add to this study the amount of worry done by the pupils in connection with their study, it becomes a burden greivous to be borne. This is especially true in a general way, of the girls, who for some reason or another, place a higher value on a teacher's approval than do the boys, and therefore make a greater effort to secure this approbation. This accounts largely for the excess of girls breaking down during the high school period—the real cause for which is not over-study so much as it is over-worry. While this is true, it is also true that this worry is an important factor, and ought to be taken into account in the preparation of high school curricula, and in the assignment of lessons. In these days of heads of departments in secondary education, there is some danger of each head considering his the most important, and assigning work accordingly—a tendency that will be guarded against by the strong, vigilant, and resolute principal, who will see that there is a just and proportionate distribution of time and study among the various departments. Boards of Education and High School Faculties, be it said to their credit, are all anxious to successfully stand the annual test made by the University (when invited to do so) that their schools may be placed on the "accredited list." The Faculties of the University are equally anxious for a high standard of requirements for admission to Berkeley.

The University, in its desire for well equipped freshmen, has, particularly during the last five years, gradually, but materially, increased the admission requirements. The authorities though, have been careful to give one or two years notice of every additional requirement. In looking over the register of the University, for the past five or six years, it will be noticed that there has been an increase in the amount of Greek required. Latin has been made a pre-requisite for admission to nearly all the colleges. One year in Physics is now demanded of all, whereas formerly this was only required in certain courses. The time to be devoted to Chemistry has been doubled. The work in English, too, has been perceptibly increased. The University has not only increased its demands as to the amount of work required, it also calls for a better quality. High school faculties, naturally enough, have tried to keep pace with the increasing demands—this too, without dropping from their curricula those studies which they have always included, and which are required by the local Boards in addition to minimum requirements of the University. They, or many of them, have done this without increasing the time in which to do the additional work, having contented themselves with demanding better preparation at the hands of grammar grade teachers. The more recently

organized high schools have pretty generally adopted a four year's course. Some of the older schools notably those of Los Angeles, San Diego, and other Southern cities, have by some means managed to get high school work into the ninth year of the grammar schools—thus practically securing a four year's course. Other places, still retain the old three year's course, resulting in overcrowded curricula and a corresponding increase of work on the part of students in spite of the increased demand made upon the ninth grade teachers by the high schools.

If relief is needed, there are but two legitimate ways to secure it. First, to lengthen the high school course in all schools to four year's of thirty-eight to forty weeks each. Second, to require little if any, more than the minimum requirements of the University, which would rob the high school of some of its most attractive features. There is another plan, viz: To disregard the University standard. This plan can not be considered, as the law requires that the high schools shall prepare their graduates to enter the State University. The first is by far the best plan, but the four year's course ought to be a definite clear-cut high school course. City and County Boards of Education ought to so arrange their elementary courses that they could be completed in eight years, as it is questionable school policy to mix the work of the elementary and secondary schools. The line of demarkation between the two ought to be sharply defined. It is a very simple affair, it seems to me, for City Boards to do this. County Boards can also accommodate their Union High Schools and still preserve the ninth year, by making the elementary course eight years, and then allowing a ninth year, post-graduate in its nature and so flexible as to fit the student either for the second high school year or more fully round up the work of the eight years' elementary course. To sum up then; I would suggest:

First—The distribution of pupils so that each teacher would have two consecutive classes of grades—better have three than only one.

Second—That eight years be allowed for the elementary schools in cities.

Third—That the high school course cover a period of four years.

Fourth—That the ninth year in the county schools be post-graduate in its nature, and the course for said year be made more flexible than at present.

WHAT'S THE USE WHEN YOU DON'T HAVE TO?

[SYNOPSIS.]

THOMAS P. BAILEY, JR., UNIVERSITY OF CALIFORNIA.

The anaesthetic boy, who heard not, smelt not, tasted not, felt not, who corresponded with his environment by means of a single eye. When the eye was shut, the boy slept. He didn't have to stay awake, therefore he did not at the mercy of his solitary orb. No inner have-to, and hence at the mercy of sensation. Compare Helen Keller: deaf, blind, dumb (until recently), with scarcely taste or smell. Yet now at a great University. Alert, thoughtful, emotional, having life and having it abundantly. Not an outer, but an inner have-to. These two cases show the beginning and the end of the developments of the have-to.

First—The biological have-to of the babe, controlled by its tissues'—needs; next, the psychical and social have-to—external, but beginning to be mental—the have-to of sensation and company—need, of relations in time and space and of relationship; of impulse and of co-operation; of inner thrills and feeling and of yellow-feeling. Sometimes the color-and-form object compels; sometimes the social object.

Third—The aesthetical have-to—this is inward, but not deep. Here we are driven by intuition, instinctive preference, valuations of things and people in terms of our preference, beginnings of the honor—sense, of hero-gods, of fanciful insights about the world. Here the inner, not very deep but human, begins to be its own have-to. The rod and the candy and mere sociality yield to the soul's feeling after reality and harmony, imitations and beauty. Sociality begins the friendship; psychicality the love of truth. The germs of philosophical, religious and ethical instincts begin to be felt.

Fourth—The ethical have-to—the consciences. The aesthetical have-to is that of taste, but conscience includes taste and transcends it. However reach the inmost have-to, the ought-to, the voice of personality, the realization of our god like nature. This is the true have-to, and the others are only prophecies of it, preparations for it. This inmost have-to includes within it ought—to the truest results of our aesthetical valuations, our philosophical insights, our religious faith. There is no use unless you have to, but let your other have-tos be based on the ethical have-to and made sacred by it.

"Shall there be Eight or Nine Years Below the High School?"

PAPER READ BY E. N. HENDERSON.

The question of whether our course of study in the Primary and Grammar Schools should, where it is nine years long, be kept so or be reduced to eight years in length to conform with standards in the Eastern States is one that is occupying much attention throughout California now. In the southern part of the State where High Schools are more generally established the shorter course is being adopted, I believe, with universality. In Oakland we have a system that embodies the conceptions involved in the demand for an eight years elementary course, while compromising in some measures with the older plan. In San Francisco the matter has been agitated and doubtless before many years the High School work will have encroached upon and fairly taken possession of the ninth Grammar Grade. In the northern part of the State, where the High Schools are more widely separated, the older system has only in few places been attacked. There are, however, notable exceptions. The Eureka system has been elaborately planned along the newer lines, and in other places steps have been taken in the same direction. It is evident that the school system of the State is tending toward the approved plan of an eight years' course for Primary and Grammar Schools and a four years' course for the High School. But whatever the tendency, the justification of superiority and practicability must be clearly made before one can urge on sufficient grounds the adoption of the spreading system. It will be my endeavor to weigh with what justice I can summon the general considerations involved, and to take some account of the peculiar circumstances by which the conceptions must on their way to practice be modified.

The general organization of the schools of the United States provides four main subdivisions or stages in the work of each of the liberal courses. They are the Primary, the Grammar, the High School, and the University. The Primary and Grammar Schools are more closely allied, and together they provide us with elementary education. Between elementary and secondary education the line of demarkation is clearly visible. The first provides for us that training in Language, Mathematics, History, and Geography by which are made capable of self-protection and able to exercise the ordinary duties of citizenship. It gives us that which according to our standards and customs is indispensable. We are physiologically so constituted that we can not get along without a heart. The needs of every vocation are getting to include with almost the same necessity elementary

education. That we should read and write and be able to use the elements of arithmetic is essential in any business. That we should know somewhat of Geography and History is requisite to the exercise of suffrage. Elementary education is food, clothing and shelter for the energies of the economic man. Equipped with it he is prepared to undertake any special system of vocational training, and for all ordinary purposes his learning is ample.

Secondary education on the other hand pushes out beyond what according to our standards is indispensable, and furnishes the training, the method, and the equipment whereby one may place himself abreast of the times in scholarship. It is the propaedeutic to learning; naturally it looks forward to the next stage of University or higher education, but to the enterprising, to those who possess or acquire a love of the sport of study the result of secondary training is such as to enable on their part even in isolation work of the character and sometimes almost the excellence of that done in the Universities. The student is made master of himself by getting method and instruments. Henceforth the world is the true University, of which a particular centre of culture may prove a remarkably rich pocket in the great mother lode; but the lode in itself is all workable—and with profit.

Higher education is, properly speaking, discipline in special intensive study where the originality and self-direction of the student is demanded more and more. It is the apprenticeship in research and investigation, and its results are continual re-discoveries along the border land of scholastic and scientific progress. Sometimes there may be even discovery, and when this takes place the novice may usually be said to have attained a certain recognizable stage in mastership.

That these distinctions are stated with a fair degree of accuracy, and are in the main applicable to existing schools will, I imagine, be conceded. But it will be seen and objected that the gap between the divisions is by no means as clearly defined in our system as the distinctions would require. Indeed, the gap is no gap at all, but rather a wide fringe sweeping over from the High school into the Grammar school on the one hand and into the University on the other. For it is plain enough that the Grammar school does more than provide for merely elementary education as this has been defined. It endeavors to do more than merely fit out with the indispensable, and adds all sorts of appendages of the useful and the interesting—things that it is good to know. The causes of this are not far to seek. Throughout the West the Grammar schools long antedated the High schools and Uni-

versities, and, while there was never a strongly felt need of severe disciplinary training such as should be given in the High school, there was a continually more pressing demand for content study; a demand that the existing body of knowledge should be more completely presented, and that the graduate should be turned out an amateur polymath. The so-called democratic dogma that "all men are born equal" and the other more truly democratic principal that all should have equal opportunities, or, at least, opportunities as nearly equal as justice in other respects will permit were practically applied, and great was the learning coming therefrom. The Grammar school assumed and conducted a course of study little less extensive than that of a fairly respectable University. Pupils are more interested in content study than in formal or disciplinary training. Teachers find more inspiration in the former, and react more pleasurably from the increased interest of their pupils. The heaping up of subjects of study and quantity of information appeals more eloquently to the general public than minute and careful attention to ground-work. The careless enthusiasm of a community where competition is suppressed from abundance of opportunity tolerates and encourages this sort of pseudo learning, and it were a gross mistake to suppose that it is without value. With all its superficiality, its formalism, its text-bookism, it is hardly too much to say that this Grammar school ideal was and is exactly the thing desired in certain communities. The pupil gets his equipment of Reading, Writing, Arithmetic, Geography and History. Surely it is no harm to give him a little more, and more still. How many of us have been imbued through repeated exhortations with the ideal of acquiring knowledge sufficient to "read the papers intelligently?" The papers, of a truth, make no great demands on our scholarship. But they are unceasing in their requisitions on general information, and such knowledge can be pleasantly acquired. When there are no higher schools with their perpetual shriek for intensive work further down, the Grammar School can pursue the even tenor of its way with gaiety and a clear conscience.

But as soon as the High School and the University make their appearance all this is changed. The High School first came under the form of the academy or college; a sort of institution that has in many cases drifted into the Universities, in others into the High Schools. These schools, however, never had an ideal that embraced much beyond that which according to the definition already given should be maintained by the High School. They laid great emphasis on formal study and the training was excellent. When upon them has been grafted the University plan with its dominant

conceptions, the incongruity of subject and method led to imperfect results that the Universities are now trying to get free from by raising their requirements for admission and thus compelling the High Schools to assume the work that is properly secondary. As it is, one can not say that the average student enters the University prepared for an apprenticeship in original research. He must yet for several years grind through his formal elements, and the difficulty of combining the harsher training that is essential for a High School with the utter freedom of the University causes his work to lack spontaneity on the one hand and to taste of superficiality on the other. The High School, therefore, reaching as it does to draw to itself its proper work from the curricula of both Grammar School and University will eventually have at least a five year's course, and the Grammar School will, perhaps, be driven back to less than eight years. To resist this tendency there will be, however, several under currents of opinion and even practical need. In the first place teachers are wont to improve the curriculum by introducing all sorts of digressions in the way of method or subject based more or less on psychological considerations. These wanderings are not always clearly directed. What is desired more than all else is simplicity, and the problem is to attain this without producing utter monotony. Improved methods too frequently complicate rather than simplify, and in the long run the result bears even less toward thoroughness. Again, the limits of the indispensable are by no means clearly defined, and, indeed, the object of the Grammar School is not generally conceived to be limited to this. Then there is a most serious difficulty of all. The Grammar School is necessarily the finishing school for the majority of the youth. That it should confine itself to the indispensable seems hard for those who will get nothing but what it gives. Moreover that those pupils who can not complete a secondary education should be compelled to enter upon a course of discipline the full fruit of which they can not realize seems unfair and undemocratic. They should like the rest have their wants supplied, and the older type of Grammar School seems most likely to insure this. The cry is raised that the Grammar School is not as it should be complete in itself, that it is being used in the interest of the High School, just as it is frequently complained that the High School is being used in the interest of the University, and, indeed, it seems rather harsh to abandon the old tendency toward wealth of content study. This is a democracy; and if we must come to see that the same education is not best for all, are we not, on the other hand bound quite as well to look out for the majority? Still it is certain that the pride of the nation will not suffer its educational system to be kept

interior or to fall short of the highest effectiveness through pandering to mediocrity. But it is evident that the importance of the change should be clearly demonstrated before the advantages of the older system are given up. One point to be gained is obvious. Throughout the entire course of education the work of the lower is made use of to support the higher. It is therefore necessary that this lower work should be utterly thorough, whatever else possesses that quality. It is a common thing for teachers in the University to complain of the work done in the High School, and for those in the High School to object to the slovenly results of the Grammar School. Criticism strikes from above downward. Yet I venture to say that so far as regards thoroughness the excellence decreases from below upward, and it is the nature of the case that this should be so. The fundamentals must be made a second nature. Any failure in this respect extends along to weaken the work all the way up. Carelessness toward the top is more common, less easily detected, and seems, doubtless is, less important. The multiplication of subjects, particularly the crowding in of content study, leads to cramming and carelessness that by the world is undetected in the finished graduate, but by the teacher who is building upon this training and assuming its thoroughness is regarded with outspoken disapproval. Clearly defined and thoroughly attainable ends in each division of the system conduces to the advantage of the whole. It is, therefore, of the highest importance that for the sake of the total system the simple object of each part should be attained, whatever else may be sacrificed. If the object of elementary education is to provide the indispensable training in Language, Arithmetic, Geography, and History let us insist on this alone, and in this case it would seem that less than eight years would be ample.

But that the Grammar School should content itself thus is not likely if altogether desirable. A certain amount of subsidiary content study must be done to provide variety, sustain interest, and satisfy the justifiable demand for more liberality on the part of those who will not go farther. Moreover it will be urged that this standard of indispensability is a varying one; and is apt to grow higher just as in the case of the High School the standard of what is essential for original work is one that varies with the development of scholarship and science, and as a more vital objection than all comes the consideration that there may be no necessity for or even advantage in completing the indispensable before taking up the liberal and the scholastic. This last point brings up the entire question of the fundamental lines on which the curriculum should be laid down. The objective standards that have heretofore been adduced are, indeed, valuable, in one sense suffic-

ient. Certain work must be done as a preparation for other work. But along with that preparation much of that for which we are getting ready may be actually accomplished, just as the scientific treatment of a concept is frequently wound up with the definition wherefrom beginning is sought to be made. Just where the line of division must be drawn is not clear, if once we abandon or decide to modify our objective criteria with their sharp but somewhat impracticable limitations. There remains, however, another class of considerations on the basis of which it is urged that all true system in education must be founded. The development of the faculties of the child must be investigated, and the course of study based on the results of this investigation rather than on the use to which the results of education are to be put. Here we are brought into contact with principles that will enable us to determine more about that content study that was, for the occasion, put in as subsidiary but is at the same time necessary, from the demands of interest and variety. These subjective criteria I shall now endeavor to extricate and define.

At first sight we seem to have emerged upon an entirely new standpoint, to have acquired an elevation whence we can see all around the obstructing angles that obscured our vision as we stood in the old position. And in a certain sense this is true. Only the old Brahministic principle that there is no change, that variety is recurrence, will assert itself in the discovery here, as in almost all cases of supposed reform that the old is simply masquerading, and that the new is nerved by its life. For it were absurd to suppose that we can define human ends without knowing humanity. As a matter of fact humanity always thinks itself to be accurately self-conscious, and it has gone on to incorporate these insights it possesses into its plans of education and action, bewailing its ignorance of effective means to put into execution its ideals but secure in the ideals themselves. And just in so far as the self-knowledge was deficient thus far did the ideal waver and become impracticable. Ends of human life are completed definitions of it, and all true ends can be realized. Moreover in the long run we cannot fail of our purposes any more than we can redefine our essences. It follows that we were driven by our old objective criteria along much the same line that our enlightenment as to the development of our faculties reveals to us. But at any rate it is not a bad idea to have had this illumination. It is very satisfying to get yourself verified and sustained, and each new point of view is a real gain in self-knowledge, which clearly repays the intellectual effort. Our Psychology has the practical value of strengthening our assurance, and serves in no mean degree to define the hitherto vague.

The development of our faculties may for the sake of the analysis we need be said to go on through two periods, and these I shall characterize as the PERCEPTIVE period and the RATIONAL period. These are merely broad classifications possessing no sharpness of definition. We are always perceptive, always rational. We are rational even in perception. But there is a drift from a predominance of that sort of rationality that we name perception toward more and more logical power. All education has recognized this distinction, since without such recognition there could be no education. The child begins with open-eyed wonder to observe, to gather together the sense impressions of simplest form and color, of taste, of smell, of luxurious touch and crooning sound. These have for it all that stimulating force from which interest-feeling value springs. There is intellectual discovery in every glance. The life of the child is one of constant surprise, and expectation of surprise. Even the experiences that it has already gained can be repeated again and again before they become really incorporated in its life so as to lose strangeness and novelty. But the second stage, the stage of conception, where classification, naming, memorizing, clearing up, the disorder of the external appropriates the interest, this stage will come with rapidity enough. There is still predominance of perception. The interest still lies in the surprise that springs from variety, but there is constantly growing a desire to rescue this variety from utter estrangement and to set up instead a harmony, through which there runs the unities of association. The interests of the child are weaving about it an array of pictures all colored with its own intimate life of feeling, and these take their places to answer the behests of its self-directed attention.

But with all this organization, this internal activity, this setting to rights of the chaotic external world is not carried on without that same stimulation from surprise that was so important a factor in the primitive impressions. The attention is in the main toward the outward, but it is being constantly carried inward by the constantly increasing importance of the associated experiences that have been stored up. There is, however, a rebellious inrush of the external to overwhelm and crush this tendency. More and more it gains headway, however, till at last we plainly see that the interest is not any longer if, indeed, it has ever been in the merely strange, but has centered itself upon the appropriation of this. There is a ravening desire to extend the limits of experience. The child is not seeking surprise as in itself an end, but rather as an indispensable stepping stone to that other far more important and interesting event, the conquest of surprise by the thorough exploitation of its object, and as has

been hinted this is probably its interest from the very first. Instinctively it recognizes in the startling world its heritage, wherein it proceeds with all dispatch to organize its kingdom.

In this second portion of what I have called the perceptive period there develops in clear relief the material of logical reflection. Perceptive analysis has built up great groups of related experience, and these have at length become so important that they dominate in no mistakable way the rest of our consciousness. The pedagogical psychologists call these nuclei apperceptive groups, and the systematic development of such of them as have been found most useful in furthering the culture of humanity is the proper business of most education. There are five great rubrics under which the business of equipping the thinking man goes on. These are Language, Literature, History, Science and Mathematics. Within these the labor of elementary education is to be spent, and the process is in general the systematic cramming of memory and the development of the sensuous imagination. The brilliant world of the senses is taken apart and put together in fantastic shapes, and around the odd creations and forming memories cluster the feeling values that dominate and must continue to dominate the experience of the individual. To follow the interest by which attention is secured and thence to develop the interest by which attention is compelled are the route and goal of such teaching. When at last the mind is capable of pursuing definite lines of close study animated by scientific or aesthetic interest, when the imagination reaches out to gather in all this material that well trained observation has collected, and to build it, not into mere fantastic pictures of interest because of their novelty, but into larger expressive cosmic wholes, then the method of approach by which the educational system strives to supply the need of the growing mind must be radically different. The objective in instruction is no longer the domination and guiding of attention, but it is the furnishing to the student the materials which his already clearly established interests demand. Popularly we say that the learner has gained a will. At any rate his judgment dominates his attention in a much more rational and independent manner, and the problem of education has become that of supplying his wants rather than of determining what these shall be.

The practical application of these principles to the problem of the length of time to be devoted to elementary education involves at least an approximate determination of the period at which the average well trained child attains the intellectual status where he is ready to be JUDICIOUSLY thrown on his own resources to accustom himself to self-direction and to attending to that which may in a greater or less

degree lack immediate interest. In general it is thought that at about twelve years of age the logical faculties, the power of self-control and of voluntary attention are beginning to develop rapidly. It is therefore wise that at about this time the educational system provide for radical changes in curriculum and methods of management. It is not meant that at about twelve the child has attained a position where he can be let alone. Far from that! But it is meant that so far from laying all stress on directing the child's interests and providing him with approved material, time must be spent more and more on leading him to define for himself his interests and to attack and master cruder and cruder material.

At this point it will doubtless be objected that as the Grammar School must give more than the absolutely essential, as it is bound to transcend the limits of the utterly indispensable in education and go a long way in giving information and training, even that is subsidiary to its main purpose, so it is bound to attend to the varying and developing needs of the growing mind. Within itself it can so arrange its work as to provide for stirring up and setting at its proper task this faculty of self-direction. Wherefore, then, should it matter whether the secondary school gets charge of the training at this stage in development? The answer comes here, however, much as before in the usefulness of stages, well marked epochs in any system. We find that if we define the indispensable in elementary education we can insist upon it and get it. The indispensable shall be the mastery in a condensed and systematic form of the essentials of English, Mathematics, Geography, and History. When, however, it is desired to reach out beyond this to stir up wider scientific interest, to train the aesthetic imagination, to give mastery of critical judgment, then it is well that the pupil should for his part feel in as decided a way as we can provoke in him that things are different, that he has reached a new platform and is under new surroundings pursuing modified ideals. Under such circumstances the response of the pupil to the demand made upon him appears with far clearer and more decided emphasis. The new environment breaks up old habits, and while we should be careful to retain such of the old as are still important, the new may be formed much more easily and effectually.

As the mind escapes from its linguistic and historical provincialism, from its narrowness of utter modernness, as it begins to realize how it can and must rule an empire of knowledge wherein is grasped nature and man from all eternity, it is well that by a broad change of methods of treatment this new epoch should be emphasized and brought home to the will, as well as the insight of the learner.

In systems it is necessary to have the ends clearly defined and distributed; in evolution whether of the individual or of the race we get along best by having stages and revolutionary periods. It is our business as systemizers to see that these ends are properly laid down and that these revolutions are properly interjected. Our systems hitherto have leaned too much toward unhealthy anticipation or arrested development.

As to the practical question of what shall be done with our nine years elementary courses, there can be but one answer. If the ideal elementary course should have eight years as the upper limit of length with a tendency toward six as an ultimate standard, wherever High Schools are being established, compromises along the line of turning work previously done by the Grammar School over in the High School should be made. The High School should have at least a four years course, the Grammar School be cut down to eight years. But wherever High Schools do not exist—and it is hoped that before many years such a contingency will be merely a matter of history, the older system should be retained and doubtless will. It supplies a practical need and a keenly felt desire of the communities for as much training, as much information as can be given by the means that the people can afford.

THE MYTH AND THE NOVEL

[SYNOPSIS.]

THOMAS P. BAILEY, JR., UNIVERSITY OF CALIFORNIA.

The myth seems to lead to the epic, and the epic to the novel. In this development, there is a progress from the aesthetical to the ethical, an enriching of personality. The myth is primitive art, primitive religion, primitive philosophy. It finds an earlier place in culture than the epic, where aesthetical and ethical are balanced; and the epic comes earlier than the novel, when the ethical is predominant. The romance is the ethical striving to feel the beauty whence it came. While the myth comes early in our course of study, we are probably overdoing the Greek myth, which is the product of a highly developed people, a highly artistic nation. American children do not necessarily feel as did adult Greeks. The myth of folk-lore is likely far better for the little children. To catch the spirit of the Greek myth, one needs to be adolescent like the Greek. The University justly asks for insight into the serene depths of Greek mythology. Children usually catch the narrative only. The teacher forces the rest. Here, again, prolonged and patient study of the children is needed.

REFRACTION.

LECTURE BY C. C. GLEAVES, M. D.—DUNSMUIR, CAL.

It may be presumptuous on my part to attempt to do justice to the important subject of refraction in the short time allotted to me, but suffice it to say, that I shall only skeletonize a general idea of the subject and present to you the more salient points. Refraction is the change in direction of a ray of light, caused by the difference of density in the medium or media through which it passes. As applied to eyesight it is an important subject because it is connected with one of the most important organs of the body; and of all the special senses, sight is the one most valued. Everyone must admit that an organ which is so necessary to our usefulness and happiness as the eye, can not be unworthy of our serious attention; indeed the intelligent care which should be given to such an important member of the body requires some knowledge of its structure and function. Even apart from this it would be natural to suppose that a subject so interesting and important would surely attract the attention of every educated mind; but alas, the universal testimony of all those observers who have the best opportunities for ascertaining the true facts, is that such is not the case, but that the people generally knows almost nothing about the eye or care of the sight. I am sorry to say that the subject is not receiving the attention in our public schools that it merits. In this day of intellectual advancement and progress it is expected that you, the teachers in our schools, should be more or less familiar with the subject of refraction and care of the sight, as often many a student strains his eyes and does them irreparable injury when a little instruction on the subject would prevent the injury, often a pupil is looked upon as stupid when in all probability the apparent stupidity is due to some error of refraction. In order to explain refraction it will be advisable here to give a brief description of the Anatomy and Physiology of the eye before taking up the subject proper.

ANATOMY AND PHYSIOLOGY OF THE EYE. EXHIBITS

A SKULL.

The orbits are two quadrilateral pyramidal cavities about two inches deep and one and one-quarter inch in diameter situated at the upper part of the face, their bases being directed forwards and outwards, and their apices backwards and inwards. The apex situated at the back part of the orbit corresponds to the optic foramen, a short circular canal which transmit the optic nerve and transmits ophthalmic artery.

There are nine openings leading to and from the orbit.

THE EYE AND ITS APPENDAGES.

The hair of the eye-brows is arranged somewhat like the straw on a thatched roof, and thus prevents the perspiration that trickles down the forehead from entering the eyes. The eye-lashes, which are delicately sensitive to the slightest touch, affords protection against the entrance of dust, insects and foreign bodies. Sometimes, however, the lids become changed in shape, and the lashes are thus directed against the ball, and then instead of being a natural protector they become an active irritant, and interfere greatly with the comfort and clearness of vision, constituting the condition that is popularly known as "wild hairs." The eye-lids are of the greatest importance in the protection of the eye ball. They close the orbit and their free margin forms an opening, called the palpebral fissure which is of varying size in different individuals, and makes the eye appear either large or small. The upper lid is larger than the lower and taken together they form two angles, the outer one sharp pointed, is called the outer canthus, the inner one less pointed, the inner canthus. The lids are composed of different layers the inner one being conjunctiva. The subcutaneous tissue is the next in order and underlying this is the muscular layer called the orbicularis muscle. The lachrymal apparatus is composed of the organ secreting the tears, the lachrymal gland and a set of canals conducting the tears from the eye to the posterior nares, seven small ducts carry the tears from the lachrymal gland to the conjunctival sac which are then distributed over the eye—then to the canaliculi which unite to form the nasal duct. The cornea is the clear transparent anterior portion of the eyeball, and is the first and most exposed portion of the dioptric apparatus; all the light that enters the eye has to pass through it. It is therefore necessary that the cornea should be perfectly clear, any disease affecting it is of great importance, because its transparency is exposed to danger and loss of vision may result from it. The sclera is composed of dense white fibrous tissue and serves to maintain the globular shape of the eyeball, it is therefore hard, and not elastic.

Its external surface is smooth, its inner surface is grooved by the ciliary nerves. The SCLERA looks white and is covered on its anterior surface with the transparent conjunctiva. The iris is a membranous curtain, perforated in the center and suspended in the anterior chamber in front of the lens, and divides the aqueous humor of the eye into two sections, one the larger and in front is called the anterior chamber and a smaller one behind, the posterior chamber. As the iris rests only lightly on the lens the exchange of the fluid contents of

the two chambers is free. The function of the iris is to shut off rays of light passing through the periphery of the lens and also to regulate the amount of light that enters the eye during the act of vision. The central opening of it, called the pupil, must therefore dilate when there is little, and contract when there is much light.

This action is regulated, however, not only by the amount of light, but also by the sensitiveness of the retina, it is therefore less marked in atrophy of the optic nerve and retina or in cataract which prevents the light from reaching the retina.

Immobility of the pupil of the eye to approaching light is said to be a sure sign of death. If you are thus affected with immobility you are dead and don't know it. The lens is one of the most important parts of the dioptric apparatus and is a transparent, double convex body, whose posterior surface is more convex than the anterior. The function of the lens is to bring the rays of light passing through it to a focus on the macula lutea of the retina, the lens is aided in this by the combined action of the cornea, aqueous and vitreous humors. These parts are called the dioptric apparatus or the refractive media of the eye. If the eye is in a state of rest and parallel rays pass through it, they will come to a focus on the retina, but if the rays come from very near objects, they are divergent instead of parallel and would come to a focus far behind the retina. The ciliary bodies connect the iris with the choroid and is connected with the sclera in front and also with the retina behind. The ciliary body—don't forget these terms—draws the interior of the eye forward and this relaxes the suspensory ligament and allows the lens to become more globular in form, at the same time drawing the iris forward, which is called accommodation. The choroid forms the posterior portion of the unreal tract and extends from the retina or entrance of the optic nerve to the ciliary body, and is in contact with the sclera. This membrane contains pigment and absorbs the rays of light after the image is formed on the retina.

The retina is the terminal expansion of the optic nerve in which is situated the macula lutea, or yellow spot, which concentrates the rays which stimulate the optic nerve and is then conducted to the brain. This completes the physical eye; from the foregoing observe that when a man has "his eye on you," you are acted upon by a most wonderfully complicated and interesting machine.

PHYSIOLOGY OF VISION.

The true seat of vision lies in the optical centres of the brain, which is connected with the eyes by the optic nerves. The eyes are only the means of seeing; they receive impres-

sions, the brain perceives them. The eye is divided into four portions: the function of the first one is to condense the rays of light emanating from an object and focus them on the retina; this is the dioptric apparatus of the eye. The function of the second portion is to receive the impressions; this is the retina. An image here formed is transmitted to the brain by means of the third portion, the optic nerve. The function of the fourth portion is to protect and support the more delicate portions of the visual apparatus.

The eye is certainly the most useful, as it is the most wonderful of all our organs of special sense. The organs of touch, taste and smell, in order to perform their functions, must be placed in actual contact with foreign substances which excite their activity; but the sense of sight is not so limited, but is equally sensitive to the impressions of light, whether it comes from an object close at hand, or from the immeasurable distances of the fixed stars. The eye is in more direct connection with the brain and mind than is any other organ, and thus it often expresses the strongest passions and the most tumultuous emotions, as well as the gentlest thoughts and most delicate sentiments. Much of this external intelligence that dwells in the eyes is marred in persons who squint or who are near-sighted, how often are we influenced in our judgment of the character of others, whom we meet for the first time, by the expression of their eyes.

The eye may be considered as an optical instrument, a sort of photographic camera, designed to produce by means of its refractive system a small and inverted picture of surrounding objects upon the retina, the stimulation produced by this picture is conducted by the optic nerve to the brain which should be able to interpret correctly the impressions thus transmitted to it. Immediately behind the retina is a layer of pigment which absorbs the rays of light as soon as the image is formed, were this not so the rays would be reflected to other parts of the retina and cause much dazzling; considerably interfering with vision as in the case of Albinos.

PHILOSOPHY OF LIGHT.

Light is propagated from a luminous point in every plane and in all directions in straight lines; these lines of direction are called rays. Rays travel with the same rapidity so long as they remain in the same medium, the denser the medium the less rapidly do the rays of light pass through it. Rays of light diverge and the amount of divergence is proportionate to the distance of the point from which they come, the nearer the source of the rays the more they diverge. When rays proceed from a distant point such as the sun it is impracticable to show that they are not parallel, and in dealing with rays which enter the eye, it will be sufficiently accurate

to assume them to be parallel when they proceed from a point at a greater distance than twenty feet. A ray of light meeting with a body, may be absorbed, reflected, or if it is able to pass through this body, it may be refracted.

ANOMALIES OF REFRACTION. [ILLUSTRATED ON
BLACKBOARD.]

Anomalies of refraction are four in number hypermetropia, or far sight, myopia, or near sight, presbyopia, or old sight and astigmatism which are unequal refractions of the meridians of the eye.

HYPERMETROPIA.

Is that condition of the optic axis in which the parallel rays are brought to a focus at a point behind the retina, due to an abnormally shallow eyeball. If the degree of hypermetropia is not great, that is, if the optic axis is only a little shorter than that of a normal eye, the increase of the refractive power of the eye is easily accomplished by accommodative efforts, producing a greater refractive power of the lens, the action of the ciliary muscle may frequently suffice to overcome the defect in the eye without the patient being aware of its action or becoming cognizant of the optical defect. In order to obtain normal vision in case of a hypermetropia we place a convex lens in front of the eye which brings back the parallel rays to the retina.

MYOPIA.

Is due in the great majority of cases to an abnormally elongated eyeball, on account of this condition parallel rays of light do not come to a focus on the retina, which is far behind the lenses of the dioptric apparatus. In very rare cases it may be also due to an unusually high refractive power of the lens or cornea caused by their greater curvature. Myopia seems to be a disease of education and civilization and its prevalence in a nation may be looked upon as an index or evidence of its intellectuality. Don't all of you think you are suffering from myopia, you can be more or less intellectual without being myopic. Myopia is unknown among the barbaric tribes, and is seldom found among our negroes. According to statistics Germany leads all other nations in the number of myopes and are of the leading German ophthalmologists says that if myopia increases during the next fifty years in proportion to the past fifty, that the whole generation will soon become myopic. I presume that is the reason no Dutch professor is happy without a pair of goggles on his nose that resemble magnifying glasses. To correct this anomaly of refraction we place a concave lens in front of the eye which extends the rays back to the retina.

PRESBYOPIA.

Is that condition of the eye in which the lens has lost its elasticity and the eye can not accommodate itself to near objects. Presbyopia is not strictly speaking an anomaly of refraction, but of accommodation. It is not a disease but a natural condition dependent upon old age and occurs about the age of forty-five years. In this condition the near or reading point recedes from that of a normal eye which is from twelve to fifteen inches; this is the reason that a presbyope or an elderly person without glasses holds the paper at a distance, because the eye cannot accommodate itself to near objects on account of inelasticity of the lens. To correct this anomaly of accommodation we place a convex lens in front of the eye which supplies the deficiency found in the crystalline lens.

ASTIGMATISM.

Is that condition in which parallel rays passing through the cornea cannot be focussed exactly on the retina, even if the optic axis is of the normal length, on account of a lack of symmetry of a portion of the dioptric apparatus. In these cases the state of refraction differs in the various meridians of the eye which have a different degree of curvature. This must result in an imperfect focussing of the rays on the retina and causes the formation of a blurred, indistinct image, which is, of course, the same whether an object is far off or near by. The most frequent anomalies of curvature causing astigmatism are found in the cornea. Regular astigmatism is generally congenital and may be hereditary; in it the two principal meridians, that of the greatest curvature, are always at right angles to each other. To correct this optical defect we place a cylindrical lens, either a convex or concave as the case may be, in front of the eye, which supplies the deficiency found in the cornea.

As to the application in a practical form of the foregoing, I purpose now giving some general instructions relative to the care of the eye.

TO PREVENT MYOPIA.

This may be done by strict attention to the method of studying which the children have, to the amount and quality of light they work by, and the arrangement of the desks; these ought to be inclined and of such a height that it is not necessary to bend over while working. The light ought to be as good as possible, and should fall over the student's left shoulder, and an artificial light should be bright and steady; it is on this account that the common student lamp gives perhaps the best light to study by. It is injurious to the eye to continue gazing too steadily or long at one object; the eye

should be rested at times, and if possible the child should be allowed to walk about the room at short intervals. Be cautious in practicing this advice.

DON'TS.

Don't read in a poor light.

Don't read in a car while it is in motion.

Don't read facing the light

Don't read in a reclining position, go to bed to sleep.

Don't read longer than an hour without looking away or resting the eyes.

Don't patronize a glass peddler or a so-called itinerant optician, remembering that eyesight is priceless and that no one is competent to test the eyes and fit glasses who is not familiar with the anatomy, physiology and diseases of the eye.

HISTORY AND PROGRESS. [EXHIBITS X RAY PHOTOGRAPHS.]

The first use of spectacles was probably for the correction of presbyopia, or old sight, about 600 years ago; and to Roger Bacon is generally given the credit of the first knowledge of their use. For many years after the discovery of spectacles, their use was confined to supplying the deficiencies of the eye consequent on age, and no special advancement in their use was made. During the past half century, however, the subject has been carefully studied by eminent specialists, and the greatest advances have been made in the treatment of the eye and its diseases, and the correction of the various optical defects by properly adjusted glasses. And one who reads the history of ophthalmology, and compares the past with the present, is forced to the conclusion that the advancements that have been made are a little short of marvelous. Fifty years ago the whole subject was shrouded in mystery and uncertainty. Hypermetropia was not known as the factor in the causation of so much headache, eyeache, and neuralgia and of so many cases of blurred sight and irritable eyes; these cases were not understood, and hence were looked upon as incurable, or classed under the head of amblyopia. Myopia was recognized by its subjective symptoms, but was not known to depend on a lengthened eyeball, caused by a diseased fundus. Astigmatism had been heard of, but its true significance was far from being understood. Strabismus and diplopia, in all their varieties, were recognized by their objective and subjective symptoms, but the theory of binocular vision, the action of the ocular muscles, and the possibilities of the benefit to be derived from prisms, were as yet undiscovered truths. Perhaps in no other branch of science has such progress been made, so much valuable relief to suffering humanity been furnished, as in this science of ophthalmology;

and the advancements made have all been in the direction of simplicity; as explained by the well understood physical laws of optics, which account for so much that was formerly obscure and unintelligible. To the beginner, the study of optics seems to present many difficulties, and obstacles are more imaginary than real, and rapidly disappear before a zealous student's application as the morning dew before the sun.

ROENTGEN'S METHOD OR THE X RAY.

A method discussed by Prof. Roentgen and first brought prominently to public notice in January, 1896. The active agent is an apparently new force, the nature of which is not yet well understood, termed by its discoverer the X Rays. By means of these rays, which seem to be a modification of the Cathodic rays of Lennard, it has become possible to photograph various objects through intervening obstacles composed of substances hitherto regarded as opaque, it is claimed, in fact, that the X rays will be found to have the power of penetrating all substances, although the degree of penetration will vary, resistance seeming to depend upon density rather than opacity. The X rays are produced by passing an electric current from a negative electrode into a vacuum tube of glass, producing a blue light which has been found to have the wonderful power of penetrating wood, leather, flesh, certain metals, and other substances, although glass offers considerable resistance. Bones, as of the hand, have been photographed with much distinctness through their fleshy coverings; bullets and calcareous deposits have been located deep in the tissues and organs; and a large number of other successful experiments already made by eminent scientists on both sides of the Atlantic fully prove that a wonderful discovery has been made, the true secret which will doubtless soon be developed. The simplest theory is, that many substances seemingly opaque, are really transparent to light vibrations of which the human eye takes no cognizance; that while window glass, etc., is transparent to light rays having a certain rate of vibrations, other substances, such as wood, leather and flesh, are equally penetrable by rays vibrating at a different rate. Another theory advanced by Prof. Roentgen is, that the phenomenon may be ascribed to longitudinal vibrations in the ether, the probable existence of which besides the transverse light vibrations, has long been suspected by scientists. Whatever may prove to be the true explanation, enough is now known to demonstrate that this is one of the most astonishing discoveries ever made by human science.

COURSE OF STUDY.

[SYNOPSIS.]

THOMAS P. BAILEY, JR., UNIVERSITY OF CALIFORNIA

Formal studies: Language and mathematics (number).
Formative studies: Literature, geography, nature-study.
Formal excites exercise, interest, rhythm, facility, power, habit. Formative excites object, interest, knowledge, insight, novelty, instinct. Formal "trains for habit"; formative, "nurture for instinct." In the first approach to the formal work we use the drill interest, the exercise interest. In the review of the formal work, we use the object interest. Thus, for instance, the language and literature interests can be gotten to re enforce each other. So number drill reviews itself by concrete and practical problems. In the High School both interests begin to be united in the same studies. On the specialist, whether in trade or profession, the interests may coincide in life-work. Thus the botanist is equally interested in plants and their analysis, though he never has both exercise and object-interest in the same degree.

"SILENT READING VS. AUDIBLE READING."

READ BY LENA K. NANGLE.

Why do we learn to read? We learn to read because the subject of reading is the first and most essential of all school work, and if properly taught has more to do with forming minds than any other branch of learning. We learn to read that we may be enabled to understand the thoughts which are represented in script and printed language and to express those thoughts intelligibly. We learn to read that we may enjoy all that is noble and beautiful of History, Science, Art and Literature; for through this reading we are all led to "approach with love the great kind souls who speak to us so tenderly and strongly out of the pages of books." We learn to read that we may become noble citizens of this grand republic.

Some one has said, "By reading, more than in any other way, we are brought to realize ourselves and our possibilities." Proper reading is true education. It makes the true, the beautiful, and the good of Literature a part of our lives.

Next to observation, reading may be made the greatest moral and mental development. Knowing the great value of the subject, our first thought as teachers should be; how shall we teach reading, so that the children may derive the greatest possible benefit.

Raub says: "In learning to read, two things are necessary—first the pupil must learn to read intelligently—that is, read the page silently, recognizing the printed or written signs as words representing thought, and have an intelligent understanding of what he reads; secondly he must learn to read to others in such a manner that they may understand clearly what is meant by the author. No one of us will question the importance of being able to read well both silently and audibly; as silent reading is a development as well as a pleasure to the person himself, and audible reading when the quality is good is a means of enjoyment to others. But before reading aloud, the pupil should master the thought and feeling of his author by careful silent study; there with no consciousness but of that thought and feeling, give forth the true expression.

If the pupil has learned to get the meaning from the printed page, if he is accustomed, from the very beginning to have his inner nature stirred by the thoughts expressed by the writer, he is not apt to develop a fondness for any but the very best Literature.

From a psychological point of view, according to Parker, "Observation is thinking, learning is thinking, silent reading is thinking; but audible reading is simply a mode of expression."

Audible reading, if carried on to any great extent in the schoolroom, even though the work be directed by a teacher of elocution, in many cases may not only prove worthless, but even a hindrance to the student as well as to the community, attended as it too often is, by pretenses of knowing that which he does not. Unless the pupil aims higher than simply to be able to call words without feeling the thought the words express, as a student he becomes a failure to himself and his country.

For a number of years past, much time has been given to audible or oral reading, in order to train the pupils in emphasis, stress, slide, pitch, inflection, etc. All this work, if properly conducted, is excellent drill and is very valuable in its place; but is this reading, or is it simply a drill in voice culture which too often takes a great portion of the time that should be spent in careful thought reading?

We are all willing to agree that the natural expression of a child engaged in conversation is more eloquent than reading, after a careful drill in the art of elocution. Why is this so? Because the conversation is an expression of the thoughts he has in mind, while the reading is more often the calling of meaningless words.

There is no better cultivation of the voice and expression than that which may be produced in giving utterance to

thought. Therefore, the child should not attempt to read aloud before he has the thought well fixed in mind.

Perhaps all of us have pupils in our schools who are able to go to the reading class without having prepared the reading lesson assigned, and read creditably well, but when asked to close the book and tell the thoughts gleaned from the lesson, will be able to give little or no idea of what they have been reading. Such pupils may have well trained eyes, as far as recognizing words is concerned, but this is not enough. The eye must be so trained that the mind will quickly recognize the thought.

"The eyes," says Tuckerman, "speak with an eloquence and truthfulness surpassing speech. It is the window out of which the winged thoughts fly unwittingly. It is the tiny magic mirror on whose crystal surface the moods of feeling fitfully play, like the sunlight and shadow on a still stream.

Since silent reading educates the faculty of sight as well as that of memory, both of which enter into greatest activity in learning to read; the reading work from the beginning should be principally silent, not audible, as any mode of instruction which unduly exalts the memory and sight, instead of calling them into healthful (play) activity, is fatally defective.

From the report given by our County Superintendent at the last County Institute, we learned that too little work was being done in the way of good reading, especially in the higher grades. Is it because too little time is spent on the subject of reading during the last few years of school? No; this cannot be, as almost every subject is a reading lesson, not speaking of the outside reading of periodicals, newspapers, stories, etc. It is because the pupil has not formed the proper habit of study. He does not study his reading at all, but glances through it to see if he can pronounce at least two-thirds of the words, and being satisfied with this amount of preparation, will go to his class and recite his reading lesson in a monotonous, drolling manner, and, like a pupil of Squeers' school, possibly his only thought in mind is that of getting through to make room for the next unfortunate, who will probably go through the so-called reading lesson in the same manner.

Most of these censurable habits into which the children unconsciously fall are due largely to too much audible reading, and may be entirely avoided if the habit of thoughtful silent reading were more liberally encouraged in our schools and homes.

The best thought reading is done with the lips closed as, "Lips and voice are not the appendages of thought." Silent systematic reading not only trains to think, but it gives ability to collect and retain facts, to analyze, compare, classify, to

search for cause and effect, to foresee results so as to form independent judgments, and to express ourselves readily and appropriately; all of which are helpful and necessary in the proper discharge of our duties of life.

Moreover, the greater part of the reading done by our boys and girls after they leave school is done silently and mentally. It is certain, therefore, that our chief aim in all the higher grades especially, should be to train the pupils to read silently and thoughtfully.

A great portion of all that is learned in mathematics is of no practical value in after life; much that is learned in grammar, geography, analysis, history, etc., is simply a means to a greater end and is lost sight of in the contest of real life, passing away as does the morning dew from the leaves, when touched by the first bright rays of sunshine, but a taste for good reading, which can be acquired only by careful, thoughtful silent reading, lasts for life, and in the words of Supt. Newell, "Will be valuable every day and almost every hour, and will grow by what it feeds on; will so occupy the time of the young as to rob temptation of half its power by stealing more than half its opportunities; and will be a refuge and a solace in adversity."

In conclusion, I will say in the words of Parker, "From beginning to end the child must think; the action of his mind shall be upon that thought which he most needs for his own growth and development; the symbols shall act upon his mind immediately attracting to themselves the least possible attention; he shall early form fixed habits of thinking when he reads, and should never fancy he is reading unless he is thinking. Thus reading may be made, next to observation, the greatest mental and moral development."

THE GENERAL EFFECTS OF EXAMINATIONS.

LECTURE BY PROF. GEORGE C. EDWARDS, UNIVERSITY
OF CALIFORNIA.

Fellow Instructors:

Your committee on program (without any permission from me) has assigned to me for to-days talk with you, a subject so wide, so high, so deep that I am unable to encompass it all. It is fair then to presume that I have the permission of the committee to go anywhere that I may see fit, or that the suggestions of the hour may carry me.

When I commenced to cogitate upon what I should say to you, it seemed to me not improbable that the member of your committee making the suggestion as to subject had

been investigating the doctrine of evolution as exemplified in the development of the pump.

You who see mining and irrigating will recall to mind the Chinese pump, where the water is brought up an inclined trough by means of scoops attached to a canvas belt which passes around two drums. You have noted the intermittent discharge of the water. That is one way of abstracting water from the source of supply.

An advance on this kind of a pump is what we call the chain pump. The chain operates in the same way that the canvas belt does and metallic discs attached to it come up through a pipe to the place of discharge. This is a sort of "hurry up" pump and requires rapidity of action. It reminds one of some examinations, the essence of which is the speed with which results can be produced.

Another kind of a pump, operating on an entirely different principle, we recall from our little book on elementary physics [natural philosophy we used to call it].

It was a tube wound in the form of a helix about a central shaft. One end was immersed in the water. The central shaft was inclined at an angle of thirty degrees with the horizontal. The intermittent discharge fell on the feet of the operator at the crank. It was labeled "Screw of Archimedes." We have all seen examinations of that kind. The results are fairly wormed out.

Then we run along through the periods of the lifts, the force, the rotary and the centrifugal pumps; getting as we advance, steadier flow and increasing quantity.

In order that a pump be effective there must be a supply, something for it to draw on. If there be no visible supply or if the supply be smaller than is desired something must be done to develop a supply. A pump is of no avail if there be no water. If we liken examination to a pump we may liken instruction to the digging of a well. If the well be a cistern which only yields what has been poured in, our instruction and our examination, our filling and our pumping, leave us just where we were. Some wells develop a considerable supply of water at little depth. I remember having dug one that proved to be in a little clay basin. The water was so abundant that the digging was given up at a depth of twelve feet, the well walled up and a pump put in. In about three months the little supply of water was exhausted. The well was too shallow and its sources very near at hand, and very limited in extent. I have seen many minds just like that well.

What we want in a well is not an abundant supply at the first, but an increasing supply as we dig deeper and intercept the underground channels and runways. We want a well such that the more we draw upon it, the more the channels

leading to it are opened; such wells are the minds of Professor Griggs and Dr. Bailey. The more you draw upon them the more you get; and the sources seem to be away out in every experience of human life. These are cases where the centrifugal pump may be used and the well never run dry.

With the illustration of the well and the pump in mind let us come to some practical considerations in our school work. The examination of a pupil, either as an individual or as a member of a class, is primarily to determine whether our work has been effective or not. We frequently forget that, and feel that the pupil is the only one on whom any responsibility rests. No, the chief responsibility is on us, and the examination is for the purpose of testing the efficiency of our work. In my school visiting I have been introduced to classes thus: "Pupils, this is Professor Edwards of the State University who has come to visit our school to-day and see whether or not you have been improving your time and your opportunities." With such an introduction my first impression is, that the teacher had better be operating on a wood pile instead of on human minds. If he had said we instead of you, and our instead of your, the impression would have been very different. Remember fellow educators: An examination whether conducted by ourselves or by some one else, is a test of our work.

As conducted by some, the daily recitation is a daily examination without any instruction. As conducted by others it is a daily instruction without any examination. The best educators make a happy combination; using a sound discretion as to whether either or neither shall predominate. I do not believe that in general we pursue the method that will produce the best results. When our recitation period is over the subject under consideration during that period is laid aside. Other subjects are taken up, or the boy goes to play or to manual labor. It may be that top time is in. It may be that March winds bring out the kites. Or it may be that the boy is to go on a coon hunt. Whether it be a boy or a girl the subject is dropped at the end of the recitation period and very likely is not again in mind for twenty-two hours. Then it is taken up and industriously conned for half an hour or an hour in preparation for the recitation. Explanations and suggestions made by the instructor at the preceding recitation have all passed out of mind and the text book is apt to be the only source from which the pupil draws.

Let me make this suggestion to you: Reverse the order. Have the period of instruction and recitation immediately followed by a study period devoted to the same subject. Then the suggestions of the instructor are fresh in mind, and by immediate application become fixed as a part of the student's

mental equipment. Before the next period for instruction and recitation a little freshening will serve a good purpose.

In every well regulated family, Sunday is a day of rest; a day set apart for the especial consideration of those topics which have to do with the welfare of the soul; a day for reflection and devotion. It does not follow, however, that we are not to rest on any other day; or that we are not to consider our future welfare, or be reflective or be devotional on any other day. Monday is wash day. It does not follow that there should not be any washing done on any other day, but the main business on Monday is washing.

Tuesday is ironing day. Wednesday is mending day, when the black stockings are brought out. Thursday is calling day. Friday is fish day, and Saturday is baking day and the day for tidying up the house and the garden. It does not follow that none of these things should be done on any other day than the one especially set apart for the performance of a particular activity, but that there is in each week a day especially devoted to the performance of some particular thing. The same idea should prevail in our school work. As a matter of course have some reading every day, but set apart Monday for reading day. Make reading the particular business. A little number work, a little spelling a little of geography, a little of drawing, of music and of recreation, but make reading the business of the day. Follow this suggestion and you will not hear that well founded lamentation, "Our children do not read as well as they used to."

Make number work the special business for Tuesday, spelling for Wednesday, and so on through the week. There is no significance in the particular day of the week to be devoted to any particular subject. The reading might as well come on Friday as on Monday; the idea is to devote a day to a subject, not excluding it from other days nor other things from its day. In saying what I have about the devoting of a day to a subject, I have had Primary School work particularly in mind. In Grammar School work the periods of particular condensation might well be a week. In the High School a month of condensed work on a subject will produce results not ordinarily reached. In the college a semester is an appropriate period of intensity.

These suggestions are not theoretical only. They are theoretical and I have seen them tried. They work.

All of you are familiar with this river which runs right through our camp here. Some of you know it well from its source a few miles above this place, to the place where it enters into Suisun Bay. From Red Bluff down past Colusa and the city of Sacramento it is a dull sluggish stream, yellow mud and silt all the way. The low lying banks and the long

stretches of levee offer nothing that is in any way interesting. The aspect about one bend of the river is the same as that at the next one, whether it be up stream or down. And you have to look twice in order to tell which is up and which is down.

But up here in this canon how different: You go less than a mile up to Mossbrae Falls and you see half the river come gurgling out from that moss and from covered bank 300 feet high. You make your way down close to the water and you stand fascinated with the splash and dash as the water pours over and around the rocks. It is impetuous in its hurry. A little below, it pours into a great emerald pool right under that basaltic cliff. It seems to be resting. From its surface are reflected the trees, the rocks and the sky. A little further along it runs out of its quiet, over the shallows of a gravel bar, its wavy, but unbroken surface causing the irregularly refracted light to play along on the bottom. Again it gains in velocity and rushes on to the next period of repose. You each and all delight in it. Within ten minutes after adjournment half of this audience is at the river's brink. I know how it pleases me and I judge others by myself. My cabin is number one in Sunshine Alley just across the bridge. When I go over intending to go to bed I stop five or ten minutes, look over, look up, look down. Then I go to the cabin, strike a light, turn down the bedding, take off my coat, put my coat on again, blow out the light, go out on the bridge and take another look. It fascinates me. You say to yourself: Run shallow, run deep; run shallow, run deep. That is the way it ought to be in our educational work: Periods of intensity and periods of comparative repose, though the stream moves continuously on. It is the dull monotony that stagnates. The thought is the same as that presented a few minutes ago: Run shallow, run deep.

In the matter of examinations held monthly perhaps, the drudgery of reading papers may be very much diminished and their efficiency be much increased by a method that I pursue with large classes. At the beginning of the period set for the examination announce that all papers must be completed at a certain time; it may be forty-five minutes hence. At the end of the time allotted to the writing, each student passes his paper to his left hand neighbor; those at the left end of the rows being brought around to those who sit at the right ends. A few minutes is given for a reading of the paper in hand and the writing of a short criticism. Then the papers are handed in. The review of a paper by a fellow student is more effective than a review by the instructor. The average student cares more for the opinion of his fellow than he does for that of his instructor. The instructor then glances over

the criticisms, selects one of the best papers, and one of the poorest ones, and at the next meeting of the class brings them before it and comments on them, calling attention to points of excellence and of deficiency. The method works well—it promotes better preparation, increases the care in the writing, develops criticism, saves the time of the instructor, shows him where he has succeeded, and where he has failed, and gives him an opportunity to supply the lacks and emphasize the successes.

The final examinations should be held at such a time that some of the papers might be brought before the class and commented on. The purpose being in part the same as in the case of the periodic examinations.

There is another kind of examination that I want to call your attention to—a kind of examination more important than any other, the kind that leads to the proper method of attack in the solution of a problem.

In any form of activity we always have problems before us. Someone dies suddenly; other members of the family are taken suddenly ill. A neighborhood quarrel has been known to exist for a long time. It is suspected that poison has been put into the food and water. Samples of water and food and some of the tissues of the body of the deceased are sent to the expert chemist. How does he operate in order to come at the solution of the problem set before him? He knows that if poison is the cause of death it will in all probability be one of four or five well known and easily obtainable poisons. He determines to try for one—prussic acid, say. The question that he asks himself is: If it be prussic acid, what are the necessary, previously established, and sufficient evidences in its various forms? If the NECESSARY, PREVIOUSLY ESTABLISHED and SUFFICIENT evidences be found, it is prussic acid. If they be lacking, the poison (if it be poison at all) is not prussic acid. In the latter case, the chemist would test for another poison, perhaps strychnine, beginning and closing the investigation with the question: If the poison suspected as existing does exist, what is the NECESSARY, PREVIOUSLY ESTABLISHED and SUFFICIENT evidence?

The physician called in to attend the sick man will say to him: Well, well, well! my friend, what is the matter with you? The sick man does not think it is well, well, well! at all; but answering the question of the doctor says: I have acute inflammation so and so. The physician immediately says to himself (consciously or otherwise): If there be acute inflammation, what are the necessary, previously established and sufficient relations? The doctor knows that with acute inflammation there is a rise of temperature. This is one of the necessary things accompanying inflammation.

The doctor tests his temperature and finds it normal. My dear friend, the doctor says, you have no inflammation. Then observing symptoms he starts out on his own excursion of inquiry. It seems to him to be so and so. Then he asks himself the question that he asked before, and that the chemist asked himself when his problem was set before him for solution. Following any suggestion if the NECESSARY, PREVIOUSLY ESTABLISHED and SUFFICIENT RELATIONS exist, the trouble is the one he thinks it to be. If the NECESSARY, PREVIOUSLY ESTABLISHED and SUFFICIENT RELATIONS cannot be determined by him, he is not able to say that the suggested difficulty is the difficulty.

Pardon me for dwelling at such length upon these illustrations and for repeating the interrogation so many times; but it is a veritable yard stick, a standard of measure, which is either consciously or unconsciously used by every one who meets with success in the solution of problems. With the former in his many forms of activity, there are problems to solve, and they must be solved in that way, and no other. It is the same with the mining man, the lawyer, the banker, the mechanic, and the teacher. As instructors of the young people who are to determine the destiny of this country, the problem that we have to solve is: How shall our work be conducted so as to best prepare these young people for the solution of the problems that shall be theirs to solve.

I speak with confidence when I say, use the yard stick of reason yourselves and teach your pupils to do the same. The three questions that may arise may be expressed as one: If the relations (said, desired, appearing), to exist, do exist, what are the NECESSARY, PREVIOUSLY ESTABLISHED and SUFFICIENT relations.

If sufficient, previously established necessary relations are found, the material for the complete solution of the problem is at hand. What I have described is technically known as the making of the ANALYSIS of a problem. The facts developed in the analysis taken in the reverse order constitutes what is technically called Synthesis. The two constitute the "Method of Attack in the Solution of a Problem."

If this yard stick proves as efficient a standard to you and to your pupils as it has to me and to my pupils, I shall feel that my visit to Shasta Retreat has been a help to others as well as a great pleasure to me.

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